

Mastering the Georgia Criterion Referenced Competency Test (CRCT)

**Diagnose – Prescribe – Practice
Workbook**

Includes:

- Georgia Performance Standards for Grade 8
- Diagnostic Test
- Practice for Each Grade 8 Georgia Performance Standard
- Sample Test
- Countdown to CRCT
- Student Recording Chart



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*Mastering the Georgia CRCT:
Diagnose–Prescribe–Practice Workbook, Grade 8*

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Road Map to CRCT Success



Checkpoint Ahead

1 Diagnose Strengths and Weaknesses

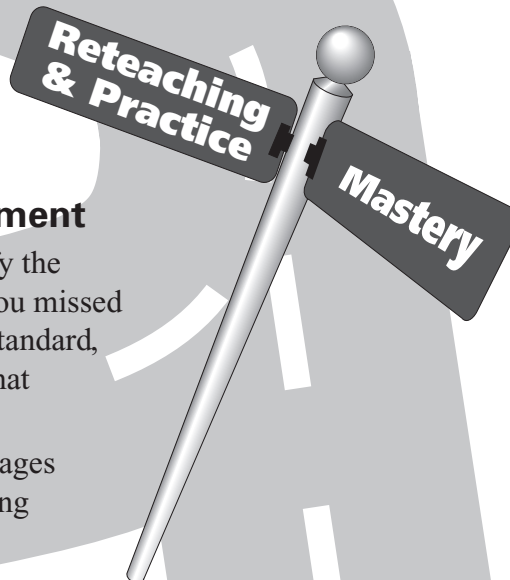
- Take the **Diagnostic Test** on pages 1–12. This test will help you identify any weaknesses you may have as you prepare to take the test.
- Complete the **Student Recording Chart** found on page v, using an **X** for questions that you answered incorrectly.

2 Prescribe A Plan for Improvement

- Use your Student Recording Chart to identify the standards that you still need to work on. If you missed one or two of the questions for a particular standard, you could probably use extra practice with that standard.
- The Student Recording Chart lists practice pages for each standard. Complete the corresponding practice pages in your workbook.

3 Practice Test-Taking Skills

- After you have completed the practice pages, take the **Sample Test** found on pages 65–76 of this workbook.
- The Sample Test gives you an opportunity to practice and improve your test-taking skills.
- The **Countdown to CRCT** on pages 77–94 of this workbook can be used in the weeks before the test. You will find practice problems similar to those on the test.



Welcome to Success!

Student Recording Chart



Directions Mark an \times next to each question from the Diagnostic Test that you answered *incorrectly*. If there is an \times marked for a Standard, write *Yes* in the *Need Practice?* box. Then complete the practice pages for that Standard.

Standard	M8N1.a	M8N1.b	M8N1.c	M8N1.d	M8N1.e	M8N1.f	M8N1.g	M8N1.h	M8N1.i	M8N1.j	M8N1.k
Test Questions	21 <input type="checkbox"/>	60 <input type="checkbox"/>	48 <input type="checkbox"/>	3 <input type="checkbox"/> 36 <input type="checkbox"/>	50 <input type="checkbox"/>	4 <input type="checkbox"/>	28 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	2 <input type="checkbox"/>	47 <input type="checkbox"/>
Need Practice?											
Practice Pages	13	13–14	14	15	15	16	16–17	17	18	18	19

Standard	M8G1.a	M8G1.b	M8G1.c	M8G1.d	M8G2.a	M8G2.b	M8A1.a	M8A1.b	M8A1.c	M8A1.d	M8A1.e
Test Questions	33 <input type="checkbox"/>	38 <input type="checkbox"/>	18 <input type="checkbox"/>	11 <input type="checkbox"/>	1 <input type="checkbox"/> 31 <input type="checkbox"/>	34 <input type="checkbox"/>	6 <input type="checkbox"/>	24 <input type="checkbox"/>	43 <input type="checkbox"/>	16 <input type="checkbox"/>	22 <input type="checkbox"/>
Need Practice?											
Practice Pages	20	21	22	23	24	25	26	26	27	28	29

Standard	M8A2.a	M8A2.b	M8A2.c	M8A2.d	M8A3.a	M8A3.b	M8A3.c	M8A3.d	M8A3.e	M8A3.f	M8A3.g
Test Questions	35 <input type="checkbox"/>	12 <input type="checkbox"/>	26 <input type="checkbox"/>	17 <input type="checkbox"/>	46 <input type="checkbox"/>	42 <input type="checkbox"/>	37 <input type="checkbox"/>	29 <input type="checkbox"/> 44 <input type="checkbox"/>	7 <input type="checkbox"/>	23 <input type="checkbox"/>	57 <input type="checkbox"/>
Need Practice?											
Practice Pages	30	31	31	32	33	34	35	36	37	38	39

Standard	M8A3.h	M8A3.i	M8A4.a	M8A4.b	M8A4.c	M8A4.d	M8A4.e	M8A4.f	M8A4.g	M8A5.a	M8A5.b
Test Questions	39 <input type="checkbox"/>	52 <input type="checkbox"/>	53 <input type="checkbox"/>	13 <input type="checkbox"/>	45 <input type="checkbox"/>	56 <input type="checkbox"/>	49 <input type="checkbox"/>	25 <input type="checkbox"/>	27 <input type="checkbox"/> 30 <input type="checkbox"/>	32 <input type="checkbox"/>	10 <input type="checkbox"/> 40 <input type="checkbox"/>
Need Practice?											
Practice Pages	40	41–42	42–43	44	45–46	46–47	47–48	48–49	49	50	51

Standard	M8A5.c	M8A5.d	M8D1.a	M8D1.b	M8D1.c	M8D2.a	M8D2.b	M8D3.a	M8D3.b	M8D4.a	M8D4.b
Test Questions	54 <input type="checkbox"/>	58 <input type="checkbox"/>	59 <input type="checkbox"/>	41 <input type="checkbox"/>	20 <input type="checkbox"/>	15 <input type="checkbox"/>	5 <input type="checkbox"/>	14 <input type="checkbox"/>	19 <input type="checkbox"/>	51 <input type="checkbox"/>	55 <input type="checkbox"/>
Need Practice?											
Practice Pages	52–53	54	55	56	57	58	59	60	61	62	63–64

Georgia Performance Standards, Grade 8 Mathematics

Strands and Performance Standards

NUMBERS AND OPERATIONS

Students will understand the numeric and geometric meaning of square root, apply properties of integer exponents and use scientific notation.

- M8N1** Students will understand different representations of numbers including square roots, exponents, and scientific notation.
- Find square roots of perfect squares.
 - Recognize the (positive) square root of a number as a length of a side of a square with a given area.
 - Recognize square roots as points and as lengths on a number line.
 - Understand that the square root of 0 is 0 and that every positive number has two square roots that are opposite in sign.
 - Recognize and use the radical symbol to denote the positive square root of a positive number.
 - Estimate square roots of positive numbers.
 - Simplify, add, subtract, multiply, and divide expressions containing square roots.
 - Distinguish between rational and irrational numbers.
 - Simplify expressions containing integer exponents.
 - Express and use numbers in scientific notation.
 - Use appropriate technologies to solve problems involving square roots, exponents, and scientific notation.

GEOMETRY

Students will use and apply geometric properties of plane figures, including congruence and the Pythagorean theorem.

- M8G1** Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence.
- Investigate characteristics of parallel and perpendicular lines both algebraically and geometrically.
 - Apply properties of angle pairs formed by parallel lines cut by a transversal.
 - Understand the properties of the ratio of segments of parallel lines cut by one or more transversals.
 - Understand the meaning of congruence: that all corresponding angles are congruent and all corresponding sides are congruent.
- M8G2** Students will understand and use the Pythagorean theorem.
- Apply properties of right triangles, including the Pythagorean theorem.
 - Recognize and interpret the Pythagorean theorem as a statement about areas of squares on the sides of a right triangle.

Strands and Performance Standards (continued)

ALGEBRA

Students will use linear algebra to represent, analyze and solve problems. They will use equations, tables, and graphs to investigate linear relations and functions, paying particular attention to slope as a rate of change.

- M8A1** Students will use algebra to represent, analyze, and solve problems.
- Represent a given situation using algebraic expressions or equations in one variable.
 - Simplify and evaluate algebraic expressions.
 - Solve algebraic equations in one variable, including equations involving absolute values.
 - Solve equations involving several variables for one variable in terms of the others.
 - Interpret solutions in problem contexts.

- M8A2** Students will understand and graph inequalities in one variable.
- Represent a given situation using an inequality in one variable.
 - Use the properties of inequality to solve inequalities.
 - Graph the solution of an inequality on a number line.
 - Interpret solutions in problem contexts.

- M8A3** Students will understand relations and linear functions.
- Recognize a relation as a correspondence between varying quantities.
 - Recognize a function as a correspondence between inputs and outputs where the output for each input must be unique.
 - Distinguish between relations that are functions and those that are not functions.
 - Recognize functions in a variety of representations and a variety of contexts.
 - Use tables to describe sequences recursively and with a formula in closed form.
 - Understand and recognize arithmetic sequences as linear functions with whole number input values.
 - Interpret the constant difference in an arithmetic sequence as the slope of the associated linear function.
 - Identify relations and functions as linear or nonlinear.
 - Translate among verbal, tabular, graphic, and algebraic representations of functions.

- M8A4** Students will graph and analyze graphs of linear equations.
- Interpret slope as a rate of change.
 - Determine the meaning of the slope and y -intercept in a given situation.
 - Graph equations of the form $y = mx + b$.
 - Graph equations of the form $ax + by = c$.
 - Graph the solution set of a linear inequality identifying whether the solution set is an open or a closed half-plane.
 - Determine the equation of a line given a graph, numerical information that defines the line, or a context involving a linear relationship.
 - Solve problems involving linear relationships.

Strands and Performance Standards (continued)

ALGEBRA (continued)

- M8A5** Students will understand systems of linear equations and use them to solve problems.
- Given a problem context, write an appropriate system of linear equations.
 - Solve systems of equations graphically and algebraically, using technology as appropriate.
 - Graph the solution set of linear inequalities in two variables.
 - Interpret solutions in problem contexts.

DATA ANALYSIS AND PROBABILITY

Students will use and understand set theory and simple counting techniques; determine the theoretical probability of simple events; and make inferences from data, particularly data that can be modeled by linear functions.

- M8D1** Students will apply basic concepts of set theory.
- Demonstrate relationships among sets through use of Venn diagrams.
 - Determine subsets, complements, intersection, and union of sets.
 - Use set notation to denote elements of a set.

- M8D2** Students will determine the number of outcomes related to a given event.
- Use tree diagrams to find the number of outcomes.
 - Apply the addition and multiplication principles of counting.

- M8D3** Students will use the basic laws of probability.
- Find the probability of simple independent events.
 - Find the probability of compound independent events.

- M8D4** Students will organize, interpret, and make inferences from statistical data.
- Gather data that can be modeled with a linear function.
 - Estimate and determine a line of best fit from a scatter plot.

Test-Taking Tips

- Go to bed early the night before the test. You will think more clearly after a good night's rest.
- Read each problem carefully, and think about ways to solve the problem before you try to answer the question.
- Relax. Most people get nervous when taking a test. It's natural. Just do your best.
- Answer questions that you are sure about first. If you do not know the answer to a question, skip it and go back to that question later.
- Think positively. Some problems may seem hard to you, but you may be able to figure out what to do if you read each question carefully.
- If no figure is provided, draw one. If a figure is furnished, mark it in any way that will help you solve the problem.
- When you have finished each problem, reread it to make sure that your answer is reasonable.
- Become familiar with a variety of formulas and when they should be used.
- Make sure that the number of the question on the answer sheet matches the number of the question on which you are working in your test booklet.

Mathematics Reference Sheet



Formulas

Area

Rectangle and Parallelogram $A = b \times h$

Triangle $A = \frac{1}{2} \times b \times h$

Circle $A = \pi \times r^2$

Volume

Rectangular Prism $V = l \times w \times h$

Cube $V = s^3$

Cylinder $V = \pi \times r^2 \times h$

Circumference

$$C = \pi \times d$$

$$\pi = 3.14$$



Diagnostic Test

Choose the best answer for each question.

- 1** Mr. Hipple designed a vegetable garden in the shape of a square. He plans to build a walkway through the garden, as shown. What is the approximate length of the walkway? **M8G2.a**



- A** 13 ft
B 17 ft
C 24 ft
D 33 ft
- 2** The sun's core temperature is estimated to be about 2.9×10^7 °F. Which of the following represents this temperature in standard form? **M8N1.j**
- A** 290,000,000°F
B 29,000,000°F
C 2,900,000°F
D 290,000°F
- 3** Which of these statements is TRUE about $\sqrt{81}$? **M8N1.d**
- A** There are two solutions, 9 and -9 .
B There is one solution only, 9.
C There is one solution only, -3 .
D There are two solutions, 9 and -1 .
- 4** $\sqrt{300}$ is between which two consecutive integers? **M8N1.f**
- A** 18 and 19
B 17 and 18
C 16 and 17
D 15 and 16
- 5** Tara has five books, each with a different color cover: blue, green, purple, yellow, and white. How many different ways can she arrange the books next to one another on a shelf? **M8D2.b**
- A** 5
B 10
C 25
D 120
- 6** A cotton milling company employs 550 workers. It plans to increase its workforce by 15 employees per week until it has tripled in size. Which equation can be used to determine w , the number of weeks it will take for the company's workforce to triple in size? **M8A1.a**
- A** $15w = 1,650 - 550$
B $15 + 550w = 1,650$
C $15w + 550 = 1,650$
D $3(15w + 550) = 550$
- 7** In the sequence below, which expression can be used to find the value of the term in the n^{th} position? **M8A3.e**

Position	Value of Term
1	0.25
2	0.5
3	0.75
4	1
5	1.25
n	

- A** $n - 3.25$ **B** $4n$
C $-0.75 + n$ **D** $0.25n$



Diagnostic Test (continued)



8 Which subset of the real numbers contains $\sqrt{3}$? **M8N1.h**

- A** irrational numbers
- B** rational numbers
- C** integers
- D** whole numbers

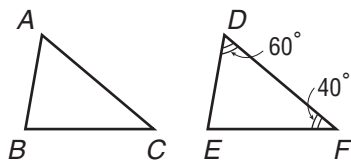
9 Evaluate $(3^{-3})(3^5)$. **M8N1.i**

- A** $\frac{9}{6.561}$
- B** $\frac{1}{9}$
- C** 9
- D** 6.561

10 What is the value of y if $-2x + 3 = 7$ and $3x + 1 = 5 + y$? **M8A5.b**

- A** -10
- B** 0
- C** 1
- D** 10

11 $\triangle ABC$ is congruent to $\triangle DEF$. What is the measure of $\angle B$? **M8G1.d**

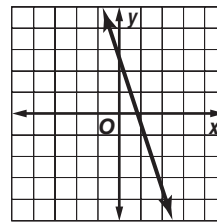


- A** 40°
- B** 60°
- C** 80°
- D** 120°

12 What is the value of x when $3x < -2x + 15$? **M8A2.b**

- A** $x > 3$
- B** $x < 3$
- C** $x > 15$
- D** $x < 15$

13 What is the slope of the line shown below? **M8A4.b**



- A** -6
- B** -3
- C** 3
- D** $\frac{1}{3}$

14 At the local glass factory, the probability of a glass being defective is $\frac{1}{10}$. About how many glasses would be defective in a case of 225 glasses? **M8D3.a**

- A** 1
- B** 2
- C** 10
- D** 23





Diagnostic Test (continued)

- 15** Walter's classroom has two doors that open into the hallway. The school building has four doors leading to the outside. Use a tree diagram to find how many different routes Walter can use to leave the classroom and go outside.

M8D2.a

- A** 8
B 6
C 4
D 2

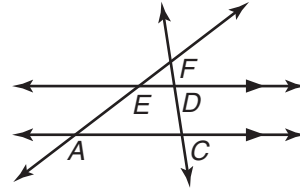
- 16** In the formula for finding simple interest $I = Prt$, I represents the interest, P represents the amount of money invested, r represents the annual rate of interest, and t represents the time in years. What is the equation when solved for the rate r ? **M8A1.d**

- A** $r = \frac{I}{Pt}$
B $r = I - P - t$
C $r = \frac{Pt}{I}$
D $r = I - (P + t)$

- 17** The Centers for Disease Control and Prevention (CDC) located in Atlanta employed at least 9,000 workers as of the year 2006. The Center was originally organized in 1946 with 400 employees. At least how many workers per year, on average, have been hired in the 60 years between 1946 and 2006? **M8A2.d**

- A** 8,600
B 156
C 150
D 143

- 18** Look at the figure. Which of these statements is TRUE? **M8G1.c**



- A** $\frac{\overline{EF}}{\overline{AE}} = \frac{\overline{FD}}{\overline{FC}}$
B $\frac{\overline{EF}}{\overline{AE}} = \frac{\overline{FD}}{\overline{DC}}$
C $\frac{\overline{EF}}{\overline{AF}} = \frac{\overline{FD}}{\overline{DC}}$
D $\frac{\overline{EF}}{\overline{ED}} = \frac{\overline{FD}}{\overline{AC}}$

- 19** A spinner and a number cube numbered 1 to 6 are used in a game. The spinner is divided into 4 equal sections: red, blue, yellow, and green. A player must spin the spinner and roll the cube to move on the game board. What is the probability of a player's spinning red and rolling a 5 or 6? **M8D3.b**

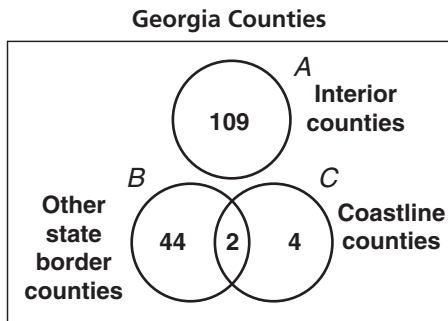
- A** $\frac{1}{24}$
B $\frac{1}{12}$
C $\frac{1}{7}$
D $\frac{7}{12}$





Diagnostic Test (continued)

- 20** The Venn diagram below shows the number of Georgia's 159 counties that border other states, the number of interior counties, and the number of counties with coastline. Which of the following contains 50 counties? M8D1.c



- A $A \cap B$
 B $A \cup C$
 C $B \cap C$
 D $B \cup C$
- 21** In a number game, Troy was supposed to find the square root of a number. Instead, he squared the number and wrote 16. What number should Troy have written? M8N1.a
- A 16
 B 8
 C 4
 D 2
- 22** Karen is planning a cookout for her friends. She will buy 3 hot dogs for each person she invites. She has invited 30 people to the cookout. Hot dogs cost \$3.79 per package. What other information is needed to find the cost of the hot dogs? M8A1.e
- A the number of people who eat hot dogs
 B the number of children at the cookout
 C the number of hot dogs in a package
 D the cost of buns

- 23** Let n represent the position of a number in the following arithmetic sequence.

$$\frac{1}{2}, 1, \frac{3}{2}, 2, \dots$$

Which expression can be used to find any term in the sequence? M8A3.f

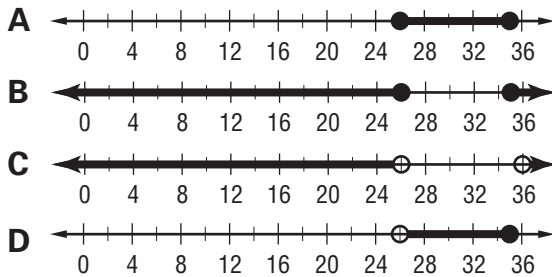
- A $2n$
 B $\frac{1}{2}n$
 C $\frac{3}{2}n$
 D $n + \frac{1}{2}$
- 24** Karina's total monthly cell phone bill, c , can be found using the equation $c = 20 + 0.07m$, where m represents the number of peak minutes used during that month. How much would Karina's monthly bill be if she used 100 minutes of peak talk time? M8A1.b
- A \$27.00
 B \$20.07
 C \$20.00
 D \$7.00
- 25** Which equation represents a line that is perpendicular to the line whose equation is $-2y = 3x + 7$? M8A4.f
- A $y - x + 7$
 B $2y = 3x - 3$
 C $y = \frac{2}{3}x - 3$
 D $y = \frac{3}{2}x - 3$



Diagnostic Test (continued)



- 26** The manufacturer of Ali's car recommends that the tire pressure be at least 26 pounds per square inch (psi) and not greater than 35 psi. Which number line represents the recommended tire pressure? **M8A2.c**



- 27** Which ordered pair is NOT in the solution set of $y = 2x + 1$? **M8A4.g**

- A** (0, 1)
B (2, 3)
C (3, 7)
D (5, 11)

- 28** The expression $\sqrt{50} + \sqrt{32}$ is equivalent to which of the following? **M8N1.g**

- A** $\sqrt{82}$
B $9\sqrt{2}$
C $9\sqrt{1}$
D 36

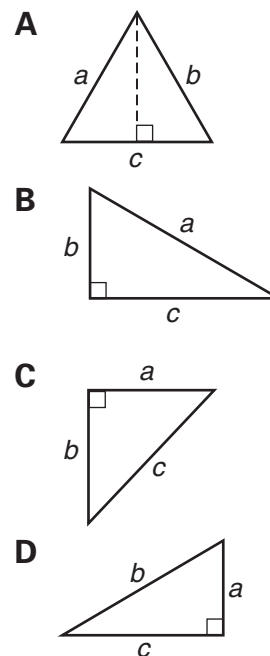
- 29** Michaela has started an after school job as a baby-sitter. She earns \$6.00 an hour. Which of these expressions represents m , Michaela's earnings as a function of h , the number of hours she works? **M8A3.d**

- A** $h = \frac{1}{6}m$
B $6m = h$
C $m = \frac{1}{6}h$
D $m = 6h$

- 30** Georgia's population grew by about 168,000 people per year between the years 1990 and 2004. In 1990, Georgia's population was about 6,450,000. If the population growth remains constant, predict the population of Georgia in the year 2020. **M8A4.g**

- A** 13,840,000
B 11,490,000
C 9,138,000
D 8,802,000

- 31** Which figure BEST represents a triangle with sides a , b , and c in which the relationship $a^2 + b^2 = c^2$ is always true? **M8G2.a**



Diagnostic Test (continued)



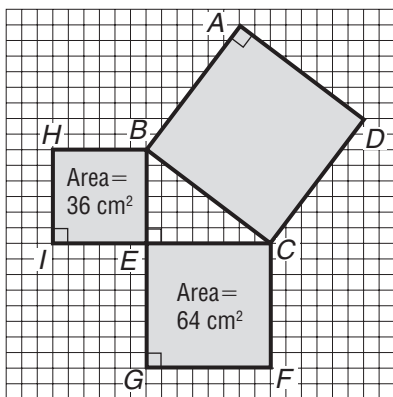
- 32** Cambra plans to join a CD club and is trying to decide between two different offers. CD Palace charges no membership fee and sells CDs for \$12 each. Music World has a \$40 club card that allows members to buy CDs for \$9 each. Which system of linear equations represents the two offers? **M8A5.a**

- A** $y = x + 12$
 $y = x + 40$
B $y = 12x$
 $y = 9x + 40$
C $y = 40x$
 $y = 12x \times 9$
D $y = 12x$
 $y = 9x + 40x$

- 33** What is the relationship between the two lines represented by $y = 4x - 5$ and $x + 4y = 8$? **M8G1.a**

- A** They are parallel.
B They are perpendicular.
C They are congruent.
D They intersect but are not perpendicular.

- 34** Find the area of square $ABCD$. **M8G2.b**



- A** 28 cm^2
B 81 cm^2
C 100 cm^2
D 144 cm^2

- 35** Georgia's Stone Mountain Park covers approximately 3,200 acres of land and water for hiking, camping, and fishing. Included in the park is a 363-acre lake. Which inequality represents the amount of acreage in the park, NOT including the lake? **M8A2.a**

- A** $a \geq 3,563$
B $a \leq 3,563$
C $a \geq 2,837$
D $a < 2,837$

- 36** Which of the following equations is NOT true? **M8N1.d**

- A** $\sqrt{0} = 0$
B $\sqrt{131} = 11$
C $\sqrt{144} = 12$
D $\sqrt{400} = 20$

- 37** Tourists can pan for gold at Grissom's Mine in Lumpkin County, Georgia. The table below shows x , the number of people in Charlie's tour group who found y , the quantities of gold in ounces listed. Which of the following BEST describes the data? **M8A3.c**

Gold Panned by Tour Group						
x	5	2	2	3	0	1
y	0.1	0.25	0.5	0.75	1	1.25

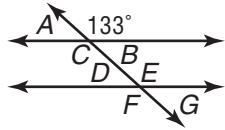
- A** function
B relation
C linear function
D sequence





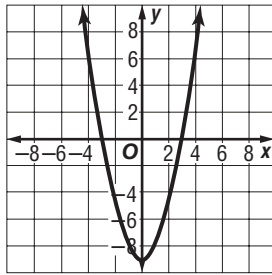
Diagnostic Test (continued)

- 38** What is the sum of the measures of $\angle A$ and $\angle B$? **M8G1.b**



- A** 266°
B 133°
C 94°
D 47°

- 39** The graph of $y = x^2 - 9$ is shown. Which of the following phrases **BEST** describes the graph? **M8A3.h**

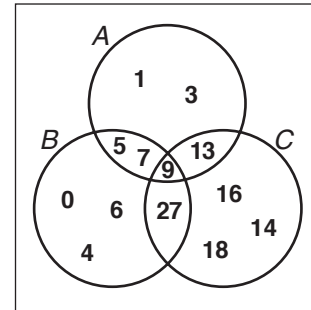


- A** linear function
B linear relation
C nonlinear function
D nonfunction relation

- 40** Which system of equations has exactly **ONE** point of intersection? **M8A5.b**

- A** $y = -x - 20$
 $y = x + 7$
B $y = 3x - 1.5$
 $y = 3x + 10$
C $y = \frac{1}{2}x - 2$
 $y = 0.5x + 4$
D $y = -x + 5$
 $y = -x + 3$

- 41** Which of the following sets is a complete list of the elements in $A \cap C$? **M8D1.b**



- A** 9, 13, 27
B 5, 7, 9, 13
C 1, 3, 5, 7, 9, 13, 14, 16, 18, 27
D 9, 13

- 42** The function shown in the table below gives acceptable sizes for a Georgia state flag. Determine the missing value for n . **M8A3.b**

Flag Dimensions (feet)					
length	1.5	3	6	9	12
width	2.5	5	10	n	20

- A** 12 feet
B 15 feet
C 16 feet
D 18 feet

- 43** The formula used for converting the temperature from degrees Fahrenheit (F) to degrees Celsius (C) is $^\circ\text{C} = \frac{5}{9}(\text{F} - 32)$. If the outside temperature in Dalton is 80°F , what is the approximate temperature in degrees Celsius? **M8A1.c**

- A** 176°C
B 140°C
C 41°C
D 27°C

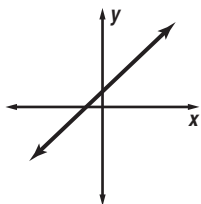




Diagnostic Test (continued)

44 Which of the following does NOT represent a function? M8A3.d

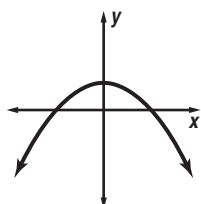
A



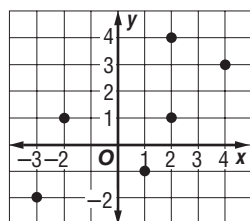
B

x	1	2	3	4	5
y	3	6	6	8	9

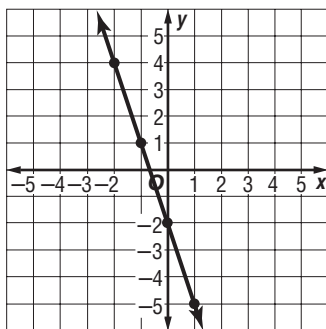
C



D



45 Which linear function is shown on the graph below? M8A4.c



A $y = 3x - 2$

B $y = -3x - 2$

C $y = \frac{1}{3}x - 2$

D $y = -\frac{1}{3}x - 2$

46 Which of the following represents a relation? M8A3.a

A



B

Height of Friends	
Name	Height (inches)
Beth	54
Sara	60
Chloe	59
Mark	47
Sam	63
Pete	61

C

x	1	2	4	9	9
y	3	6	7	12	15

D $y \leq 390$

47 Plants and animals grow through a process called cell division. The table shows the growth pattern through 4 divisions. How many cells are there after 7 divisions? M8N1.k

Number of Divisions	Number of Cells
1	$2^1 = 2$
2	$2^2 = 4$
3	$2^3 = 8$
4	$2^4 = 16$

A 32

B 64

C 128

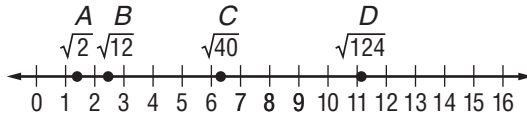
D 224





Diagnostic Test (continued)

- 48** Which of the following points is NOT in the correct location on the number line?
M8N1.c

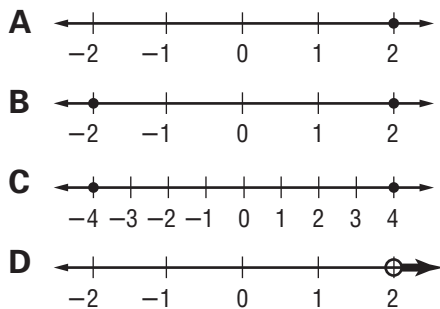


- A Point A
 B Point B
 C Point C
 D Point D

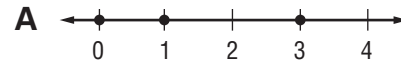
- 49** Which of the linear inequalities describes the open half-plane to the right of the vertical axis? M8A4.e

- A $x > 0$
 B $x \geq 0$
 C $y > 0$
 D $y < 0$

- 50** Which number line correctly shows $x = \sqrt{4}$? M8N1.e



- 51** Which of the following data sets represents a linear function? M8D4.a



B

x	y
1	3
1	6
1	8
1	12

C

x	y
0	2
6	-1
8	4
10	-4

D

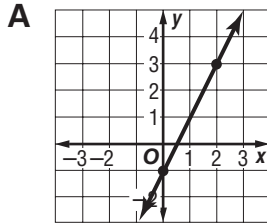
x	y
-1	3
-2	2
-3	1
-4	0



Diagnostic Test (continued)



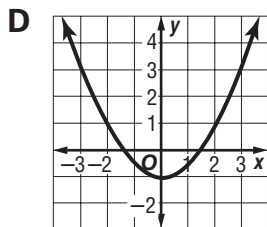
- 52** Which of the following relations **CANNOT** be represented by $y = 2x - 1$? **M8A3.i**



B

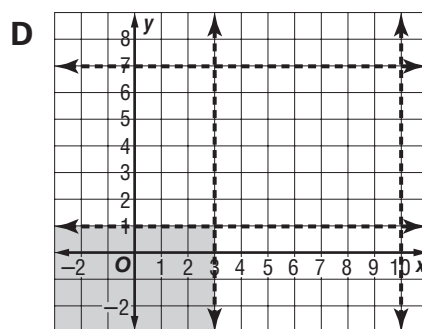
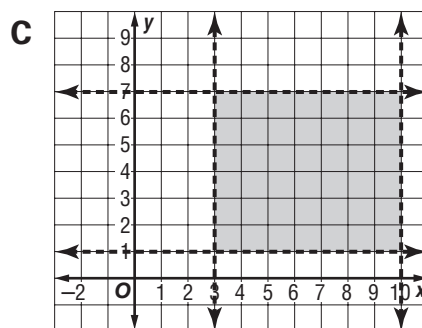
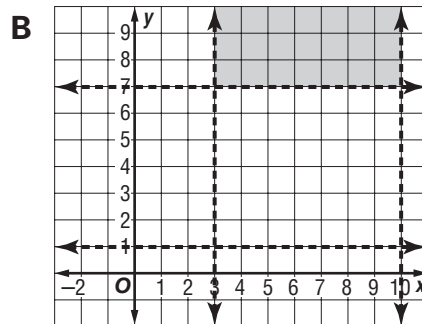
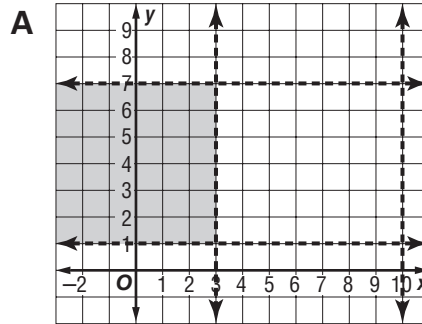
x	y
5	9
6	11
7	13
8	15

- C** y equals one less than twice a number



- 53** A quart of water is heated in a pan. The temperature of the water increases from 22°C to 35°C in 20 seconds. At this rate, how long will it take the water temperature to increase from 35°C to 100°C ? **M8A4.a**
- A** 120 seconds
B 100 seconds
C 90 seconds
D 60 seconds

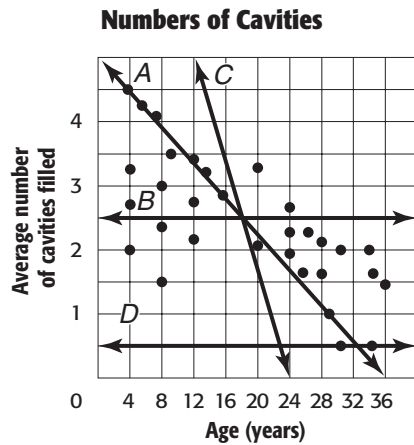
- 54** Alex has between \$3 and \$10. Barney has between \$1 and \$7. Which graph below represents the amount they have together? **M8A5.c**





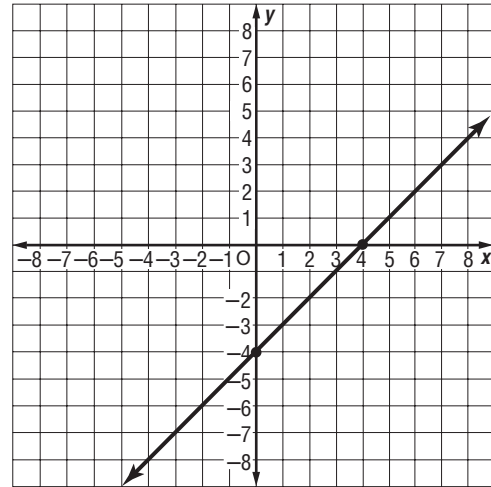
Diagnostic Test (continued)

- 55** A dentist kept a record of the number of cavities she filled last year and the ages of the patients who had the cavities. The scatter plot below shows the average number of cavities filled for patients aged 4 to 36. Which line could be considered a line of best fit? **M8D4.b**



- A** line *A*
B line *B*
C line *C*
D line *D*

- 56** Which equation represents the line graphed below? **M8A4.d**



- A** $3x - 4y = 2$
B $x - y = 4$
C $2x + y = 8$
D $x + y = -4$



Diagnostic Test (continued)



57 Consider the following sequence.

3, 6, 9, 12, 15, . . .

Let x be the position of the term and y be the value of the term. What is the slope of the associated linear function?

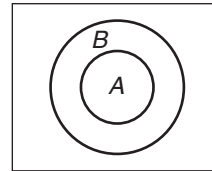
M8A3.g

- A** -3
- B** 1
- C** 3
- D** 6

58 Mr. Simmons runs a bed and breakfast in Savannah. His yearly income can be represented by the equation $y = 75x$, where x is the number of nights a room is rented and y is income in dollars. His yearly expenses can be represented by the equation $y = 30x + 900$. The solution to the set of linear equations is the point (20, 1500). What does this point represent? **M8A5.d**

- A** Mr. Simmons makes \$20 per night if he rents 1,500 rooms per year.
- B** Mr. Simmons spends \$1,500 on food and maid service for 20 nights of room renting.
- C** The expense of running the bed and breakfast is \$1,500 per year, but Mr. Simmons makes only \$20 per night.
- D** Mr. Simmons needs to rent 20 rooms per year and have a break-even amount of \$1,500.

59 Which of the following sets could be represented by the Venn diagram below? **M8D1.a**



- A** Set A = odd integers
Set B = irrational numbers
- B** Set A = rational numbers
Set B = irrational integers
- C** Set A = integers
Set B = rational numbers
- D** Set A = rational numbers
Set B = fractions

60 The floor area of a square bedroom in a home is 127 square feet. What is the length of each wall? **M8N1.b**

- A** $\sqrt{63.5}$
- B** 11
- C** $\sqrt{127}$
- D** 12





Standards Practice

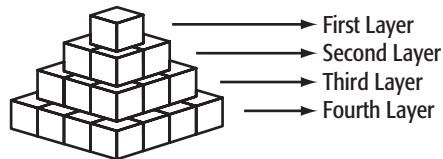
Choose the best answer for each question.

M8N1.a NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation.

Find square roots of perfect squares.

- 1 Horatio used wooden cubes to make the pyramid-shaped structure shown in the picture below. Which layer contains 121 cubes?



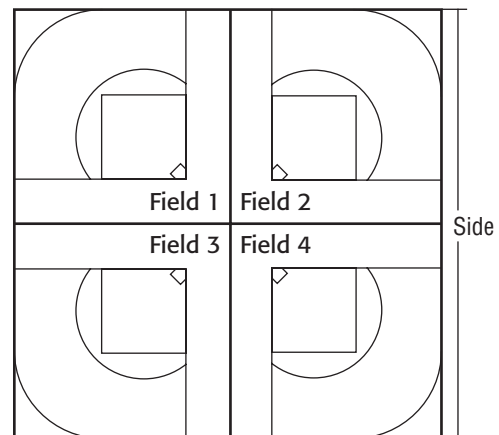
- A 6th B 7th
 C 11th D 13th
- 2 Evaluate $\sqrt{144}$.
 A 12 B 14
 C 36 D 72
- 3 Which number has the greatest value?
 A 15 B $\sqrt{225}$
 C $\sqrt{169}$ D 17
- 4 Interstate I-285, which circles Atlanta, is 64 miles long. What is the square root of 64?
 A 4,096 B 128
 C 32 D 8
- 5 Which of the following numbers is NOT a perfect square?
 A 48 B 81
 C 196 D 400

M8N1.b NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation.

Recognize the (positive) square root of a number as a length of a side of a square with a given area.

- 1 Valdosta Baseball Park is made up of 4 square baseball fields, each of which has an area of 3,600 square meters.



What is the length of each side of the park?

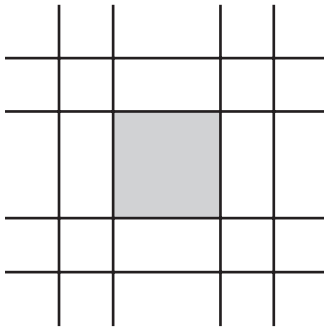
- A 60 m B 120 m
 C 144 m D 240 m
- 2 What is the perimeter of a square dog pen with an area of 9 square yards?
 A 18 yd B 12 yd
 C 9 yd D 4 yd
- 3 A cube has a total surface area of 24 square centimeters. What is the side length of each square face of the cube?
 A 2 cm B 4 cm
 C 6 cm D 8 cm



Standards Practice

M8N1.b NUMBERS AND OPERATIONS (continued)

- 4 A city block formed by four streets in Marietta creates a perfect square. The area of the square is 900 square feet. What is the length of each side of the square block?

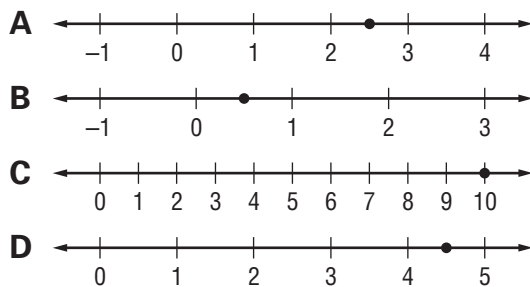


- A 20 ft B 25 ft
C 30 ft D 60 ft

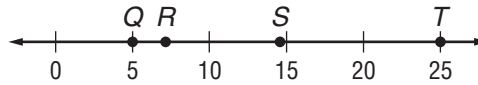
M8N1.c NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Recognize square roots as points and as lengths on a number line.

- 1 Which number line BEST shows $\sqrt{20}$?

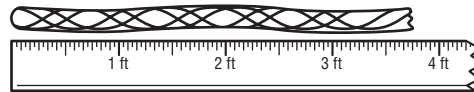


- 2 Which point BEST represents the location of $\sqrt{50}$?



- A *Q*
B *R*
C *S*
D *T*

- 3 Mrs. McKay cut a piece of rope to the length shown below. Which of the following is a possible length of the rope?



- A $\sqrt{15}$
B $\sqrt{9}$
C $\sqrt{4}$
D $\sqrt{3}$

- 4 Georgia has $\sqrt{10,000}$ miles of coastline. Which point on the number line represents the location of $\sqrt{10,000}$?



- A *M*
B *N*
C *O*
D *P*



Standards Practice

M8N1.d NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Understand that the square root of 0 is 0 and that every positive number has two square roots that are opposite in sign.

1 Solve $x^2 = 36$.

- A $x = 6$
- B $x = 6, -6$
- C $x = 18$
- D $x = 0, 6$

2 What is the square root of zero?

- A 0
- B 1
- C undefined
- D -0

3 When asked the outside temperature, Ashley said, "Its square is 16°C ." Which of the following shows all of the possible outside temperatures?

- A 4°C
- B -4°C
- C $4^\circ\text{C}, -4^\circ\text{C}$
- D $-4^\circ\text{C}, 0^\circ\text{C}, 4^\circ\text{C}$

4 Evaluate the expression $\sqrt{4} - \sqrt{0} - 5^2$.

- A 27
- B 21
- C 3
- D -23

5 Which list has three representations of the same value?

- A $\sqrt{4}, -2, \frac{8}{4}$
- B $|-3|, \sqrt{9}, -3$
- C $\sqrt{0}, 0, \frac{0}{5}$
- D $\sqrt{5}, 5, -5$

M8N1.e NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Recognize and use the radical symbol to denote the positive square root of a positive number.

1 Evaluate $(x - 2)^2 + 8$ if $x = \sqrt{25}$.

- A 57 or 17
- B 57
- C 17
- D 11

2 Evaluate $64 - \sqrt{64}$.

- A 0
- B 56
- C 72
- D 128

3 Solve $x^2 = 30$.

- A $x = \sqrt{30}$
- B $x = 5.5$
- C $x = \sqrt{30}, -\sqrt{30}$
- D $x = 15$

4 Which of the following statements is TRUE?

- A Using the $\sqrt{\quad}$ symbol indicates ONLY the positive square root of a number.
- B Using the $\sqrt{\quad}$ symbol indicates BOTH the positive and negative square roots of a number.
- C Using the $\sqrt{\quad}$ symbol requires placing a (+) or (-) in front of the symbol to determine whether the positive or negative square root is intended.
- D Using the $\sqrt{\quad}$ symbol indicates ONLY the negative square root of a number.

5 Evaluate $7a^2 - \sqrt{a}$ if $a = 4$.

- A 24
- B 26
- C 108
- D 110



Standards Practice

M8N1.f NUMBERS AND OPERATIONS
 Students will understand different representations of numbers including square roots, exponents, and scientific notation. Estimate square roots of positive numbers.

- $\sqrt{200}$ is between which two consecutive integers?
 - 16 and 17
 - 15 and 16
 - 14 and 15
 - 13 and 14
- Mr. Fairchild wrote four irrational numbers on the board and asked Jordan to choose the number closest to 3. Which number should Jordan choose?

A $\sqrt{6}$	B $\sqrt{10}$
C $\sqrt{12}$	D $\sqrt{14}$
- Which is a good approximation of $\sqrt{91}$?

A 4.5	B 5
C 8.5	D 9.5
- Which number has the GREATEST value?

A $\sqrt{47}$	B 6
C 8	D $\sqrt{54}$
- Scott knows that the area of the center circle of the basketball court in the school gym is 110 square feet. He wants to find the radius of the center circle of the basketball court in the school gym. He determines that the square of the radius is 34 feet. What is the BEST estimate of the radius?

A 5.8	B 6.1
C 6.4	D 6.8

M8N1.g NUMBERS AND OPERATIONS
 Students will understand different representations of numbers including square roots, exponents, and scientific notation. Simplify, add, subtract, multiply, and divide expressions containing square roots.

- Evaluate $(x - 5)^2 + 7y$ if $x = \sqrt{144}$ and $y = \sqrt{16}$.
 - 253
 - 77
 - 35
 - 14
- Simplify the expression.

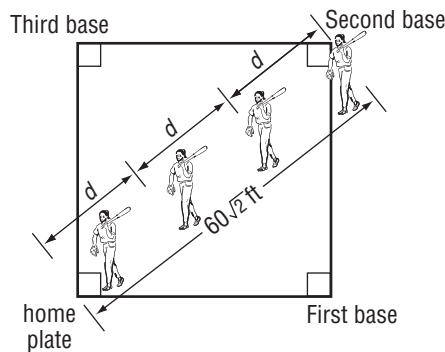
$$-6(\sqrt{81} - \sqrt{64})$$
 - 102
 - 6
 - 6
 - 102
- What is the sum of $5\sqrt{7}$ and $3\sqrt{28}$?
 - $11\sqrt{7}$
 - $12\sqrt{7}$
 - $60\sqrt{7}$
 - $8\sqrt{35}$
- Atlanta-Fulton County Stadium, the former home of the Atlanta Braves, was imploded in 1997. A square perimeter fence was put up around the blast zone for safety. Calculate the perimeter of the square if each side was $150\sqrt{2}$ meters long.
 - $154\sqrt{2}$ meters
 - $600\sqrt{2}$ meters
 - 1,200 meters
 - $600\sqrt{8}$ meters



Standards Practice

M8N1.g NUMBERS AND OPERATIONS (continued)

- 5 On a regulation softball field, the distance from home plate to second base is $60\sqrt{2}$ feet. Coach LaSota has four players stand in the field as shown in the diagram. What is the distance from one player to another?



- A 16.4 feet
 B $15\sqrt{2}$ feet
 C 21 feet
 D $20\sqrt{2}$ feet

M8N1.h NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Distinguish between rational and irrational numbers.

- 1 Which of the following is an irrational number?
- A $0.\bar{3}$ B $\frac{3}{8}$
 C $\sqrt{49}$ D π

- 2 Which of the following is NOT an irrational number?

- A $\frac{\sqrt{2}}{\pi}$
 B $2\sqrt{4}$
 C $\sqrt{3}$
 D $\sqrt{8}$

- 3 Which of the following is NOT true?

- A Rational numbers can be expressed as a fraction.
 B Rational numbers can be expressed as a terminating or repeating decimal value.
 C All square roots of even numbers are rational.
 D All whole numbers are rational numbers.

- 4 A square stepping stone in Atlanta's Centennial Olympic Park measures $3\sqrt{2}$ feet on a side. Which of the following is TRUE of the area of the square stone?



- A The area is a rational number.
 B The area is an irrational number.
 C The area is a decimal value.
 D The area cannot be determined.

- 5 For which of the following values of x is $x\sqrt{3}$ a rational number?

- A $x = \sqrt{6}$
 B $x = \sqrt{5}$
 C $x = \sqrt{4}$
 D $x = \sqrt{3}$



Standards Practice

M8N1.i NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Simplify expressions containing integer exponents.

1 Evaluate 2^{-3} .

- A $\frac{1}{6}$ B $\frac{1}{8}$
 C -6 D -8

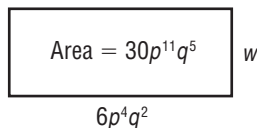
2 Evaluate $(2^3)(3^{-2})$.

- A -72 B -48
 C $\frac{8}{9}$ D 36

3 What is the value of $28 - 3^3$?

- A 19
 B $\frac{28}{27}$
 C 1
 D -1

4 The area of a rectangle is $30p^{11}q^5$ square inches. If the length of the rectangle is $6p^4q^2$ inches, what is the width of the rectangle in inches?



- A $180p^{15}q^7$
 B $36p^{15}q^7$
 C $5p^{15}q^7$
 D $5p^7q^3$

M8N1.j NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Express and use numbers in scientific notation.

1 The driving distance from Athens to Waycross is about 460,000 meters. Which of the following shows this number in scientific notation?

- A 4.6×10^5 B 4.6×10^4
 C 4.6×10^{-4} D 4.6×10^{-5}

2 A micrometer is equal to 1×10^{-6} meter. Which shows this number in standard notation?

- A 0.0000001
 B 0.000001
 C 0.00001
 D 1,000,000

3 A scientist is comparing the weights of the four molecules listed in the table below. Which of these molecules is the heaviest?

Molecule	Weight (g)
Water	2.99×10^{-23}
Hydrogen gas	3.35×10^{-24}
Methane	2.66×10^{-23}
Uranium hexafluoride	5.85×10^{-22}

- A water
 B hydrogen gas
 C methane
 D uranium hexafluoride

4 A light year is defined as approximately 5,880,000,000,000 miles. Which of the following shows this number in scientific notation?

- A 5.88×10^{-13} B 5.88×10^{-12}
 C 5.88×10^{12} D 5.88×10^{13}



Standards Practice

M8N1.k NUMBERS AND OPERATIONS

Students will understand different representations of numbers including square roots, exponents, and scientific notation. Use appropriate technologies to solve problems involving square roots, exponents, and scientific notation.

1 Simplify $6^2 - \frac{16}{2} + \sqrt{25}$.

- A 57
- B 33
- C 19
- D 7

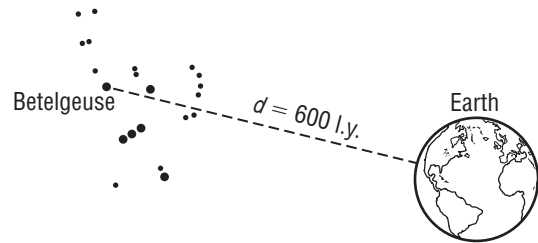
2 Which list shows the numbers in order from least to greatest?

- A $0.2, \frac{1}{2}, \sqrt{2}, 2$
- B $2, \sqrt{2}, 0.2, \frac{1}{2}$
- C $\sqrt{2}, 0.2, \frac{1}{2}, 2$
- D $0.2, \sqrt{2}, \frac{1}{2}, 2$

3 In a given year, 2^5 sets of triplets were born in Columbus, Georgia. In the same year, 2^6 sets of twins were born. Which of the following is equivalent to the total number of twin and triplet sets born that year?

- A 4^{30}
- B 4^{11}
- C 2^{11}
- D 96

4 The star Betelgeuse of the Orion constellation is approximately 600 light-years from Earth. One light-year is approximately equal to 6×10^{12} miles. What is the approximate distance, in miles, between Betelgeuse and Earth?



- A 3.6×10^{13}
- B 6×10^{14}
- C 3.6×10^{15}
- D 6×10^{15}

5 The volume of Earth is about 259,000,000,000 cubic miles. The volume of Mars is about 15% of the volume of Earth. In scientific notation, what is the volume of Mars?

- A 1.5×10^{10}
- B 1.5×10^{11}
- C 3.9×10^9
- D 3.9×10^{10}

6 Simplify $\sqrt{81} \times \frac{27}{3} - 4^3$.

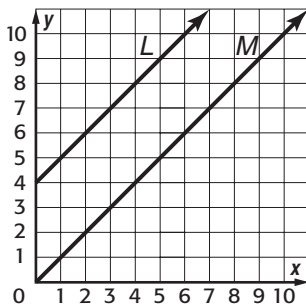
- A 17
- B 21
- C 27
- D 64

Standards Practice



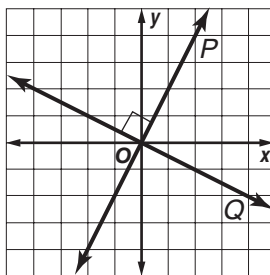
M8G1.a GEOMETRY Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence. Investigate characteristics of parallel and perpendicular lines both algebraically and geometrically.

- 1** Consider lines L and M on the graph below. Which of the following BEST describes the slope of these two lines?



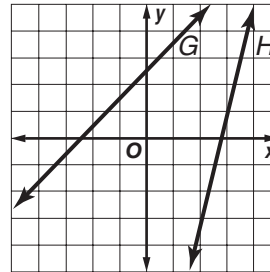
- A The slopes are equal.
 B The slopes are negative reciprocals of each other.
 C The slopes have a sum of 1.
 D The slopes are undefined.

- 2** Lines P and Q are perpendicular. The slope of line P is -3 . What is the slope of line Q ?



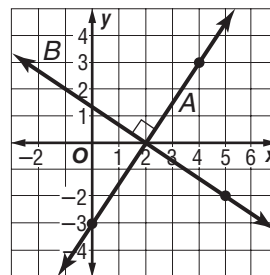
- A -3 B $-\frac{1}{3}$
 C $\frac{1}{3}$ D 3

- 3** Consider lines G and H on the graph below. Which of the following BEST describes the relationship of the lines?



- A parallel
 B perpendicular
 C congruent
 D intersecting

- 4** Line A on the graph below is represented by the equation $y = \frac{3}{2}x - 3$. Which of the following equations represents line B ?



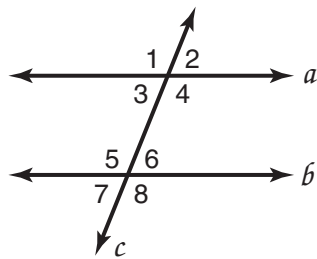
- A $y = \frac{2}{3}x + 1$
 B $y = -\frac{2}{3}x + \frac{4}{3}$
 C $y = -3x + \frac{1}{3}$
 D $y = \frac{1}{3}x - 2$



Standards Practice

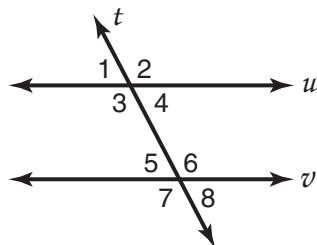
M8G1.b **GEOMETRY** Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence. Apply properties of angle pairs formed by parallel lines cut by a transversal.

- 1** In the figure below, lines a and b are parallel. Which of the following are alternate interior angles?



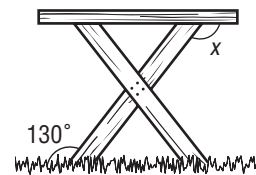
- A angle 1 and angle 2
 B angle 4 and angle 5
 C angle 3 and angle 5
 D angle 5 and angle 6

- 2** In the figure below, lines u and v are parallel. If the measure of angle 1 is 50° , what is the measure of angle 8?



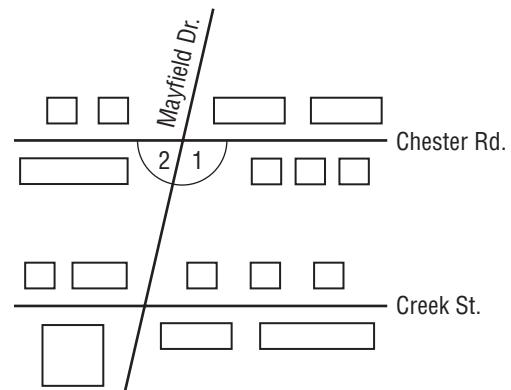
- A 25°
 B 45°
 C 50°
 D 130°

- 3** Pedro is building a picnic table to be used in the outdoor lunch area of the school. An end view of the table is shown below. The top of the table will be parallel with the ground. One side of each leg will meet the ground at 130° . What is the measure of angle x ?



- A 30°
 B 50°
 C 100°
 D 130°

- 4** The city map below shows the locations of new buildings planned for the intersections of Mayfield Drive and Chester Road, and Mayfield Drive and Creek Street. Chester Road and Creek Street are parallel. The sidewalk contractor needs to determine the measures of the angles at each intersection. He knows that the measure of angle 1 is 110° . What is the measure of angle 2?



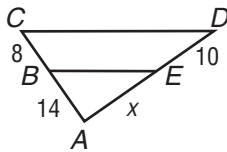
- A 70°
 B 90°
 C 100°
 D 110°

Standards Practice



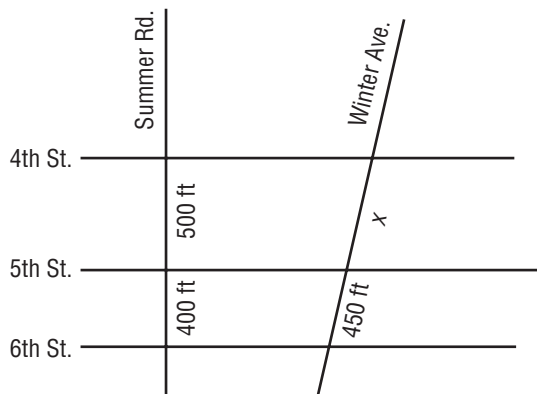
M8G1.c GEOMETRY Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence. Understand the properties of the ratio of segments of parallel lines cut by one or more transversals.

- 1 In the figure below, \overline{BE} is parallel to \overline{CD} . What is the measure of x in units?



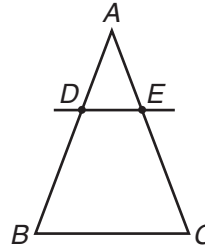
- A 14 units
- B 15.5 units
- C 16 units
- D 17.5 units

- 2 In the figure below, 4th Street, 5th Street, and 6th Street are parallel to one another. What is the length of the section of Winter Avenue that is between 4th Street and 5th Street?



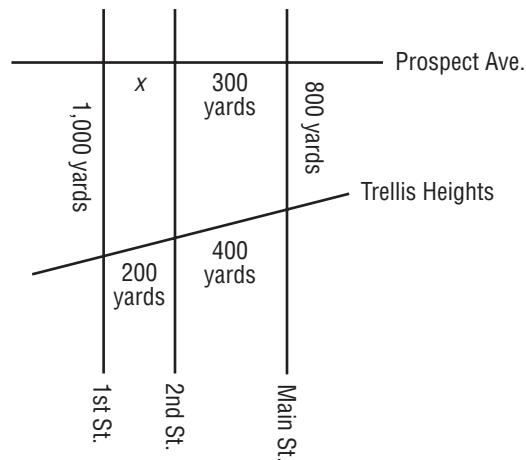
- A 480.3 ft
- B 525 ft
- C 550 ft
- D 562.5 ft

- 3 Triangle ABC has the following side lengths: $AB = 10$ centimeters, $AC = 12$ centimeters, and $BC = 8$ centimeters. Line DE is parallel to side BC , and the length of AD is 4 centimeters. What is the length of AE ?



- A 3.3 cm
- B 4.8 cm
- C 6 cm
- D 8 cm

- 4 On the map below, Main Street, 2nd Street, and 1st Street are parallel to one another. Joann lives at the corner of Prospect Avenue and Main Street. She starts her morning jog at her house, continues west on Prospect Avenue to 1st Street, proceeds south on 1st Street to Trellis Heights, and goes northeast to Main Street. Joann then heads north along Main Street back to her house. How far does Joann jog?



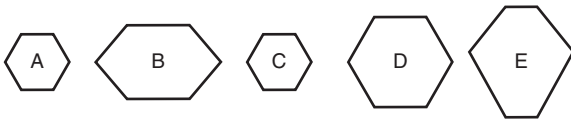
- A 2,800 yd
- B 2,850 yd
- C 2,900 yd
- D 2,950 yd



Standards Practice

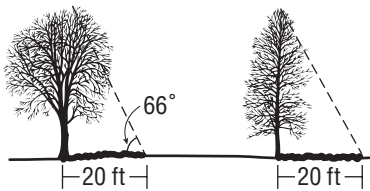
M8G1.d **GEOMETRY** Students will understand and apply the properties of parallel and perpendicular lines and understand the meaning of congruence. Understand the meaning of congruence: that all corresponding angles are congruent and all corresponding sides are congruent.

1 Which of the following hexagons are congruent?



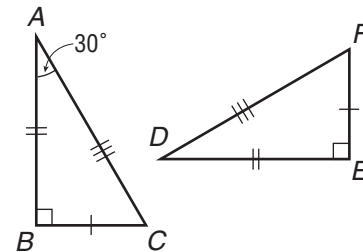
- A A, C, and D
- B B and E
- C A and D
- D A and C

2 A maple tree casts a shadow that is 20 feet long. The angle of elevation from the end of the shadow to the top of the tree is 66 degrees. A nearby pine tree casts a shadow of equal length. What is the relationship of the heights of the trees?



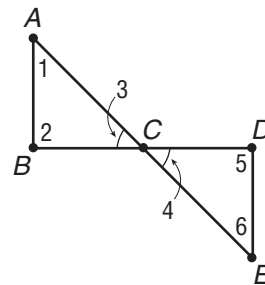
- A The maple tree is taller.
- B The pine tree is taller.
- C The trees are the same height.
- D The relationship cannot be determined.

3 The triangles shown below are congruent. What is the measure of angle F ?



- A 30°
- B 45°
- C 60°
- D 75°

4 In the diagram below $\angle 2$ and $\angle 5$ are right angles. $\triangle ABC$ is congruent to $\triangle EDC$. If $\angle 1$ measures 50° , what is the measure of $\angle 6$?



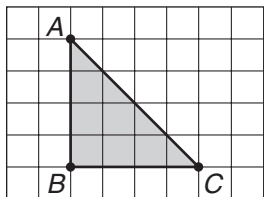
- A 40°
- B 50°
- C 60°
- D 70°



Standards Practice

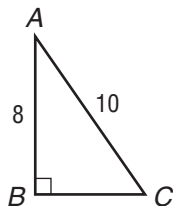
M8G2.a **GEOMETRY** Students will understand and use the Pythagorean theorem. Apply properties of right triangles, including the Pythagorean theorem.

- 1 The diagram below shows $\triangle ABC$ drawn on the unit grid. What is the length of side AC ?



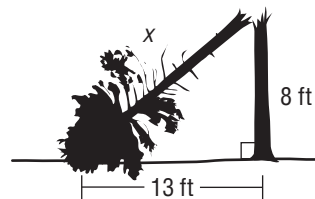
- A $2\sqrt{3}$ units
 B 5 units
 C $4\sqrt{2}$ units
 D 16 units

- 2 What is the measure of side BC in the right triangle shown below?



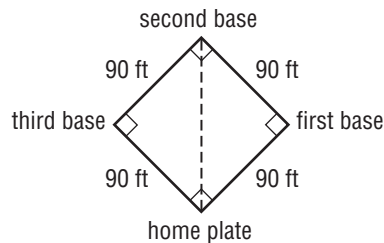
- A 2
 B 6
 C 18
 D 36

- 3 A large tree in Mr. Kern's yard was struck by lightning and fell as shown in the diagram below. Which equation could be used to find the length of the fallen part of the tree?



- A $8^2 + 13^2 = x$
 B $\sqrt{8^2 + 13^2} = x$
 C $13^2 - 8^2 = x$
 D $\sqrt{13^2 - 8^2} = x$

- 4 Trevor is the catcher for his school's baseball team. The catcher must be able to throw from home plate to second base. What is the distance from home plate to second base?



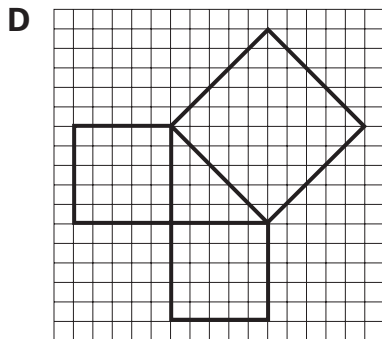
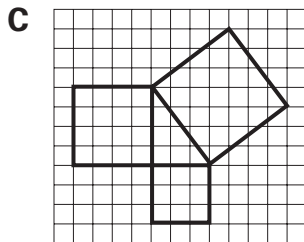
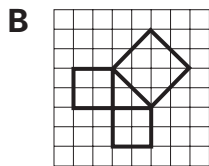
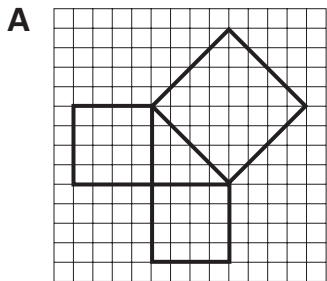
- A 90 ft
 B $90\sqrt{2}$ ft
 C 180 ft
 D $180\sqrt{2}$ ft



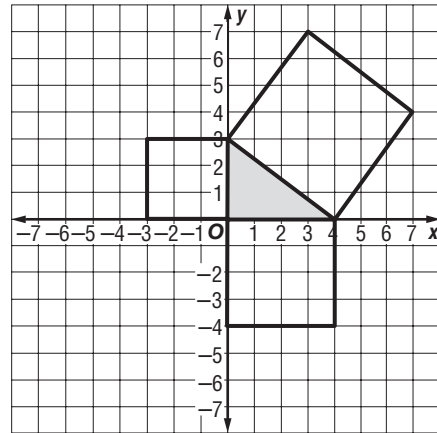
Standards Practice

M8G2.b GEOMETRY Students will understand and use the Pythagorean theorem. Recognize and interpret the Pythagorean theorem as a statement about areas of squares on the sides of a right triangle.

- 1** A Pythagorean triple is a set of three positive integers that satisfy the equation of the Pythagorean theorem. Which of the right triangles below has side lengths that form a Pythagorean triple?

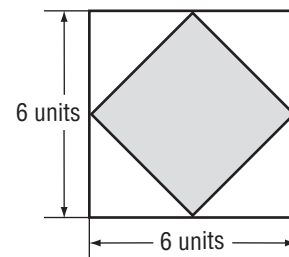


- 2** What is the area of the largest square in the figure shown?



- A** 5 square units
B 9 square units
C 16 square units
D 25 square units

- 3** Next weekend, Joseph and his family plan to go boating at Lake Sidney Lanier. Before they can go, Joseph and his sister must sew several signal flags for the boat. One of the flags is a signal that means that the boat is disabled. The flag is a white square with a tilted red square in the center. Each corner of the red square touches the center of an edge of the flag. If each side of the flag is 6 units long, what is the area of the red square?



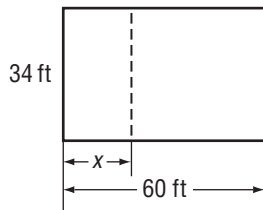
- A** 36 units²
B 18 units²
C 24 units²
D 9 units²

Standards Practice



M8A1.a ALGEBRA Students will use algebra to represent, analyze, and solve problems. Represent a given situation using algebraic expressions or equations in one variable.

- 1 A large classroom has the dimensions shown below. A new movable wall is installed so that the room can be divided into two separate classrooms. The area of the new smaller classroom is $34x$. Which of the following expresses the area of the larger classroom?



- A $60 - 34x$ B $34(60 - x)$
 C $\frac{60 - x}{34}$ D $(34 \times 60) - x$
- 2 Atlanta's Promenade II building is 691 feet tall. The height of the building does not include a radio antenna that stands on top of the building. Which of the following expressions represents the height of the building and the antenna?
- A $691 + x$ B $691 - x$
 C $691x$ D $\frac{691}{x}$
- 3 Coach Lee brought 65 pieces of fruit to a soccer tournament. He gave each player on his team 3 pieces of fruit, and there were 20 pieces left over. Which equation could be used to find n , the number of players on Coach Lee's team?
- A $65 = \frac{n}{3} - 20$ B $65 = \frac{n}{3} + 20$
 C $65 = 3n - 20$ D $65 = 3n + 20$

M8A1.b ALGEBRA Students will use algebra to represent, analyze, and solve problems. Simplify and evaluate algebraic expressions.

- 1 Simplify the expression.

$$3x^2y + 6x^2y$$

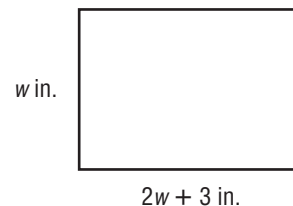
- A $9x^2y$ B $9x^4y^2$
 C $18x^2y$ D $18x^4y^2$
- 2 If $x = 2$ and $y = 4$, what is the value of $x - 5y$?
- A 18 B 12
 C -6 D -18

- 3 Simplify the expression.

$$-2x - 10x^2 + 42 + 13x^2$$

- A $3x^2 - 40x$ B $3x^2 - 2x + 42$
 C $x^2 - 40$ D $30x$
- 4 Evaluate $2a^2 + bc$ if $a = 7$, $b = -25$, and $c = 4$.
- A -86 B -28
 C -2 D 196

- 5 A curator at the Georgia Museum of Art wants to order a rectangular frame for a painting. She doesn't know exactly what size the frame should be, but she does know that the length is 3 inches more than twice the width. Which expression represents the perimeter of the frame in inches?



- A 46 in. B $4w + 6$ in.
 C $6w + 6$ in. D $2w^2 + 3w$ in.



Standards Practice

M8A1.c ALGEBRA Students will use algebra to represent, analyze, and solve problems. Solve algebraic equations in one variable, including equations involving absolute values.

1 What value of x makes the equation TRUE?

$$-12 + (-3x) = 0$$

- A 12
- B 4
- C -4
- D -5

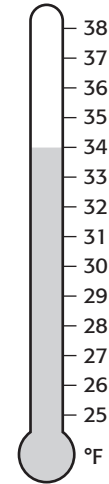
2 If $7x + 3 = 17$, what is the value of $7x - 3$?

- A 14
- B 11
- C -7
- D -14

3 According to the 2000 Census, the average household income in the state of Georgia was \$42,433. This amount was within \$439 of the national average. Solve the equation $|42,433 - x| = 439$ to find x , the national average household income in dollars.

- A \$41,994 or \$42,872
- B \$42,872
- C \$41,994
- D $-\$41,994$ or $-\$42,872$

4 Mr. Paulos installed a new temperature-sensing unit in one of his refrigerator cases in his grocery store. The alarm will sound if $|T - 34| \geq 2$, where T is the temperature in degrees Fahrenheit. At what temperature will the alarm sound?



Freezer Temperature

- A 32°F
- B 36°F
- C 32°F or 36°F
- D -32°F or -36°F

5 Irene borrowed \$3,600 from Georgia Fourth National Bank to buy a car. The simple interest rate for the loan is 10.5%. Irene will pay back the loan over 3 years. Use the equation $I = prt$, where p is the amount of the loan, r is the interest rate, and t is the duration of the loan, to find I , the amount of interest Irene will pay over the life of the loan.

- A \$126
- B \$1,134
- C \$11,428
- D \$113,400

Standards Practice



M8A1.d ALGEBRA Students will use algebra to represent, analyze, and solve problems. Solve equations involving several variables for one variable in terms of the others.

1 The equation for a line is $2x + 3y = 12$. Solve the equation for y .

- A $y = \frac{2}{3}x + 12$
- B $y = -\frac{2}{3}x + 4$
- C $y = -\frac{3}{2}x + 4$
- D $y = \frac{3}{2}x - 4$

2 Roller coaster enthusiasts took a trip to an amusement park. They determined their total cost (c) to be $c = g + 3t - 2d$ where g is the cost of gas, t is the cost of tickets and d is the amount of discount received. Solve the equation to determine the amount of the discount.

- A $t = \frac{1}{3}c - \frac{1}{3}g + \frac{2}{3}d$
- B $t = c - g + \frac{2}{3}d$
- C $d = \frac{1}{2}g + 1\frac{1}{2}t - \frac{1}{2}c$
- D $d = \frac{1}{2}g + \frac{1}{2}t + \frac{1}{2}c$

3 Distance equals rate times time or $d = rt$. Which is the correct equation for finding the time t ?

- A $t = dr$
- B $t = \frac{r}{d}$
- C $t = d - r$
- D $t = \frac{d}{r}$

4 Solve the equation $2x - y = 8$ for y .

- A $y = 2x + 8$
- B $y = 2x - 8$
- C $y = -2x + 8$
- D $y = -2x - 8$

5 For an object moving in a circular path, its acceleration, a , towards the center is given by the formula $a = \frac{v^2}{r}$ where v is the velocity and r is the radius of the circular path. Solve this formula for the velocity, v .

- A $v = ar$
- B $v = \frac{a}{2r}$
- C $v = a^2r$
- D $v = \sqrt{ar}$

6 Let $4t + 3s + 2p = c$ where t is the cost of movie tickets, s is the cost of soda, p is the cost of popcorn, and c is the total cost. Solve the equation for t to find the cost of a ticket.

- A $t = \frac{1}{2}c - \frac{3}{4}s - p$
- B $t = \frac{1}{4}c - \frac{3}{4}s - \frac{1}{2}p$
- C $t = \frac{1}{4}c - 3s - 2p - 4$
- D $t = \frac{1}{4}c - \frac{1}{2}s - \frac{3}{4}p - 4$

7 The formula for finding the perimeter of a rectangle is $P = 2(L + W)$. Solve for the length L .

- A $L = P - 2W$
- B $L = \frac{P}{2} - W$
- C $L = \frac{P - W}{2}$
- D $L = \frac{P + W}{2}$



Standards Practice

M8A1.e ALGEBRA Students will use algebra to represent, analyze, and solve problems. Interpret solutions in problem contexts.

1 Tyler runs 100 meters in 30 seconds at track practice. If he maintains this running rate, how long will it take him to run 1,000 meters? Use the equation $d = rt$, where d is the distance in meters, r is Tyler's speed in meters per minute, and t is his time in minutes.

- A 3 minutes, 20 seconds
- B 5 minutes
- C 10 minutes
- D 30 minutes

2 MARTA, Atlanta's transit system, charges \$1.75 for a one-way fare. A monthly pass for unlimited rides costs \$52.50. Karen rides MARTA 30 times every month. Which statement is TRUE?

- A Karen will save money if she buys the monthly pass.
- B Karen will save money if she pays the one-way fare each time she rides.
- C Karen will pay the same amount whether she pays the fare each time she rides or buys the monthly pass.
- D Karen will save money if she rides MARTA fewer than 30 times each month.

3 Martin is a computer technician. He charges a fixed fee of \$35 plus \$40 per hour for the service call. Martin's fee can be represented by this equation.

$$y = 40x + 35$$

In the equation, what does the variable x represent?

- A the amount Martin charges per hour
- B the number of hours Martin works
- C the fixed fee for the service call
- D the total cost of the repair job

4 At a theme park in Georgia, a log ride releases water in cycles as represented by the equation $y = 50,000x$, where x represents the cycle and y the total number of gallons of water released. How many gallons of water have been released after cycle 6?

- A 300,000
- B 350,000
- C 400,000
- D 450,000



Standards Practice

M8A2.a ALGEBRA Students will understand and graph inequalities in one variable. Represent a given situation using an inequality in one variable.

1 In 2004, Georgia's population was about 8,830,000. If more than half of Georgia's population lives in Atlanta and the surrounding metropolitan area, which inequality represents x , the population of Atlanta and the surrounding metropolitan area?

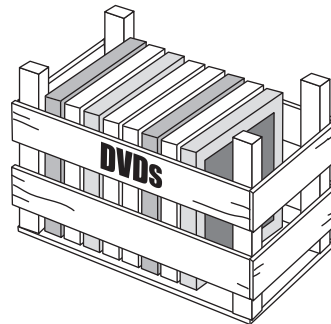
- A $x \geq 17,660,000$
- B $x \leq 8,830,000$
- C $x > 4,415,000$
- D $x < 4,415,000$

2 The Punatar family prepared the budget shown for their vacation to Sea Island. If the Punatars can spend up to \$2,000 total, which inequality represents d , the number of days the family can stay on vacation?

Sea Island Vacation Budget	
gas, travel expenses	\$800 total
hotel, food	\$150 per day
entertainment	\$50 per day

- A $800 + 200d \leq 2,000$
- B $800d + 200 \leq 2,000$
- C $800 + 150 - 50 \geq 2,000$
- D $800 - 200d \leq 2,000$

3 A wooden crate containing 8 DVDs weighs no more than 4.2 kilograms. The crate itself weighs 0.6 kilogram when empty. If w represents the weight of one DVD, which of the following describes this situation?



- A $8w = 4.2$
- B $8w + 0.6 \leq 4.2$
- C $8w - 0.6 \leq 4.2$
- D $8(w + 0.6) < 4.2$

4 Carlos sells video games on a Web site. The cost for his Web site is \$75 per year. Carlos sells each video game for \$25. What inequality can Carlos use to determine g , the number of video games he must sell to make a profit of at least \$50 per year?

- A $100g \leq 50$
- B $75g + 25 \geq 50$
- C $25g + 75 \leq 50$
- D $25g - 75 \geq 50$



Standards Practice

M8A2.b ALGEBRA Students will understand and graph inequalities in one variable. Use the properties of inequality to solve inequalities.

- 1 Which of the following numbers is a solution for the inequality?

$$5(2x - 10) > 49$$

- A 10 B 5
C 0 D -6

- 2 What is the value of x in the inequality?

$$x + 12 \geq -3$$

- A $x \geq -3$ B $x \geq 3$
C $x \geq -15$ D $x \leq 15$

- 3 Margaret Mitchell's book *Gone With the Wind* sold more than 1,000,000 copies in the first six months after its release. Assume that it has sold at least 250,000 copies in each of the 70 years since then. Which of the following represents c , the total number of copies of the book sold since its release?

- A $c \geq 1,250,000$ B $c \geq 17,500,000$
C $c \geq 18,500,000$ D $c \leq 250,000,000$

- 4 Solve for m .

$$-9m + 6 < 24$$

- A $m < -2$ B $m > -2$
C $m < 2$ D $m > 2$

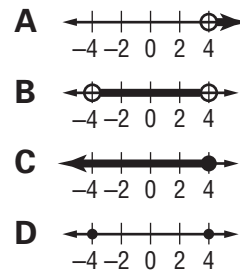
- 5 Salespeople at Bruno's Appliances earn \$900 per month plus a commission of 3% of their sales. How much must a salesperson sell to have a monthly income of at least \$2,400?

- A at least \$3,100 B at least \$5,300
C at least \$15,000 D at least \$50,000

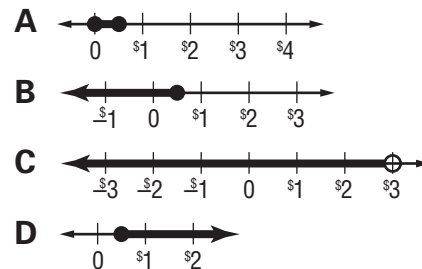
M8A2.c ALGEBRA Students will understand and graph inequalities in one variable. Graph the solution of an inequality on a number line.

- 1 Which graph represents the solution to the following inequality?

$$x + 3 \leq 7$$



- 2 Three dollars is at least enough to buy 4 stamps and a \$1.00 phone card. Which is the correct graph of the solution set for s , the cost of one stamp?



- 3 The state of Georgia ranks ninth in the nation in geographical area. The number line below shows the approximate area of Georgia in square miles. Which inequality BEST represents this number line?



- A $57,960 \leq x \leq 69,400$
B $57,960 \leq x \leq 59,500$
C $58,000 \geq x \geq 60,000$
D $x \leq 60,000$



Standards Practice

M8A2.d ALGEBRA Students will understand and graph inequalities in one variable. Interpret solutions in problem contexts.

1 A service company is called to give an estimate on a repair of an air conditioner. The technician estimates that the repair cost will be at least \$138. This price includes a service charge of \$40 and a labor rate of \$28 per hour. Which of the following shows how long the technician thinks the job will take?

- A $x \leq 3.5$ hours
- B $x \geq 3.5$ hours
- C $x \leq 6.35$ hours
- D $x \geq 6.35$ hours

2 Mr. Carson is attending a conference at the Georgia International Convention Center. He will spend 8 nights in a nearby hotel and can spend no more than \$1,000 total for lodging. What is the MOST Mr. Carson can pay per night for a hotel room?

- A \$125
- B \$145
- C \$350
- D \$992

3 Monica needs a sum of at least 360 points on four tests to earn an A in history for the term. The table below shows the scores she earned on the first three tests.

Monica's Test Scores	
Test 1	86
Test 2	88
Test 3	90
Test 4	

What is the LOWEST score that Monica can earn on the fourth test and still earn an A in history?

- A 94
- B 96
- C 98
- D 100

4 At least 64% of the University of Georgia freshman applicants for the 2005–2006 school year were accepted to the university. If 12,330 students applied for admission, at least how many were accepted?

- A 192
- B 4,438
- C 7,891
- D 11,200



Standards Practice

M8A3.a ALGEBRA Students will understand relations and linear functions.

Recognize a relation as a correspondence between varying quantities.

1 Which of the following is TRUE of relations?

- A All relations are functions.
- B All relations can be graphed on a number line.
- C All relations are sets of inputs with corresponding outputs.
- D All relations can be graphed as a straight line.

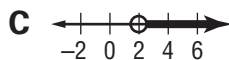
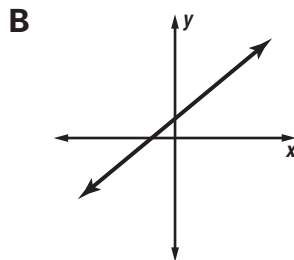
2 The line $x = 4$ is graphed on a coordinate plane. Which statement BEST describes the line?

- A It is both a relation and a function.
- B It is neither a relation nor a function.
- C It is a function but not a relation.
- D It is a relation but not a function.

3 Which of the following does NOT represent a relation?

A

x	y
4	7
5	2
4	3



D $\{(0, 2), (1, 3), (2, 5), (3, 10)\}$

4 Weekly attendance figures for a movie shown at The Peach Theater are given in the table below. The theater will no longer show the movie when the weekly attendance drops below 100.

Weekly Attendance	
Week	Attendance
1	6,540
2	3,120
3	1,512
4	730

Which of the following BEST describes the data shown?

- A linear function
- B relation
- C linear relation
- D sequence

5 A line has the following ordered pairs.

$(-2, 2), (-1, 2), (0, 2), (1, 2), (2, 2)$

Which statement BEST describes the line?

- A It is a function but not a relation.
- B It is both a relation and a function.
- C It is a relation but not a function.
- D It is neither a relation nor a function.



Standards Practice

M8A3.b ALGEBRA Students will understand relations and linear functions.

Recognize a function as a correspondence between inputs and outputs where the output for each input must be unique.

1 Why is the data shown in the table NOT a function?

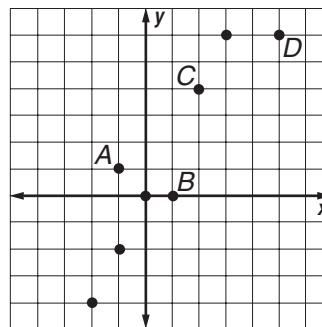
Employee	Hours Worked (x)	Amount Earned (y)
Kathy	30	\$360
Sam	40	\$360
Mike	40	\$400
Chris	50	\$600

- A There are three data columns in the table.
- B There are two values of x for $y = \$360$.
- C There are two values of y for $x = 40$.
- D There is not a constant difference between y values.

2 What name is given to a set of ordered pairs (x, y) such that for any value of x , there is exactly one value of y ?

- A relation
- B function
- C sequence
- D mapping

3 Which of the following points can be removed from the graph to create a function?



- A A
- B B
- C C
- D D

4 Which value of x completes the table so that the ordered pairs represent a linear function?

x	y
1	3
2	5
3	7
4	9
	11

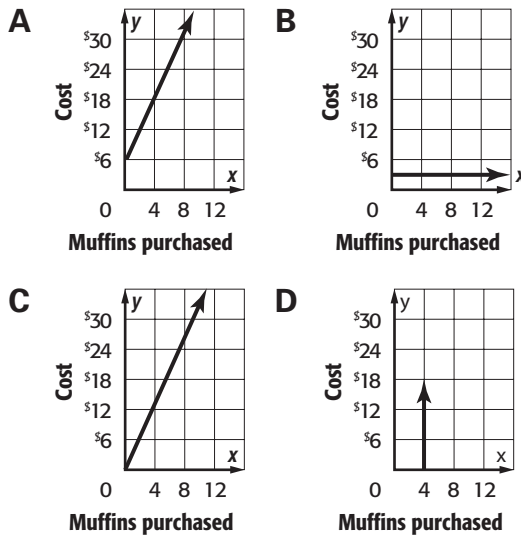
- A 2
- B 5
- C 9
- D 12



Standards Practice

M8A3.c ALGEBRA Students will understand relations and linear functions. Distinguish between relations that are functions and those that are not functions.

1 Which of the following graphs of relations is NOT a function?



2 Which of the following relations IS a function?

A	x	y	B	x	y
	1	3		2	1
	1	5		4	2
	1	7		6	1
	1	9		8	2
C	x	y	D	x	y
	-3	2		3	-3
	-1	7		6	-6
	6	1		3	-9
	4	3		6	-12
	-3	9			

3 To earn a HOPE college scholarship from the state of Georgia, students must meet several requirements, including at least a 3.0 grade point average (GPA) in high school. The table shows the number of seniors at a high school with qualifying grade point averages. Which of the following BEST describes the data set?

GPA	Number of students
3.0	11
3.1	13
3.2	7
3.3	5
3.4	16
3.5	14
3.6	16
3.7	11
3.8	21
3.9	2
4.0	3

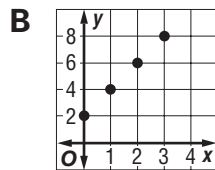
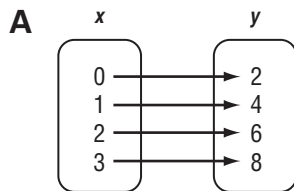
- A** a relation and a function
B a relation but not a function
C a function but not a relation
D neither a relation nor a function



Standards Practice

M8A3.d ALGEBRA Students will understand relations and linear functions. Recognize functions in a variety of representations and a variety of contexts.

- 1 The function $f(x) = \{(0, 2), (1, 4), (2, 6), (3, 8)\}$ can be represented in several other ways. Which is NOT a correct representation of the function $f(x)$?



- C x is a whole number less than 5, and y is two more than two times x .
 D $x = 2y + 2$ and the domain is $\{0, 1, 2, 3\}$.

- 2 The table shows the relationship between Jennifer's age j , and Brant's age $f(j)$.

Jennifer's age, j	Brant's age, $f(j)$
2	8
3	9
4	10
5	11

Which of the following describes the function relationship?

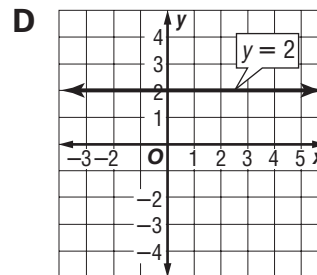
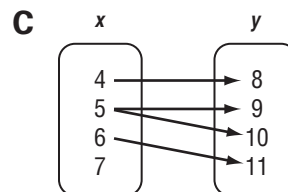
- A $f(j) = j + 6$
 B $f(j) = 2j + 1$
 C $f(j) = 2j + 2$
 D $f(j) = 6j$

- 3 Which of the following represents a function?

A $\{(2, 4), (2, 6), (2, 8), (2, 10)\}$

B

x	y
30	3
40	6
50	8
60	9
60	10



- 4 The table below shows the approximate number of people who are of Native American or Native Alaskan descent in selected Georgia counties as reported in the 2000 Census. Which of the following terms BEST describes the data?

County	Population	Native American/ Alaskan
Appling	17,419	36
Atkinson	7,609	28
Bacon	10,103	15
Barker	4,074	9
Baldwin	44,700	96

- A probability
 B sequence
 C function
 D linear



Standards Practice

M8A3.e ALGEBRA Students will understand relations and linear functions.

Use tables to describe sequences recursively and with a formula in closed form.

1 Which value is missing in the table?

n	0	4	6
$2(n + 3)$	6	14	?

- A 15
- B 18
- C 24
- D 36

2 Ms. Collier showed her class the pattern of equilateral triangles below.



The table shows the data that the students were asked to find.

Number of Triangles	1	2	3	4	n
Outer Perimeter (units)	3	4	5	6	p

Which of the following is a function rule for the sequence shown in the table?

- A $p = 2n$
- B $p = 3n + 1$
- C $p = 3n - 1$
- D $p = n + 2$

3 Which expression can be used to find the n th term in the following arithmetic sequence, where n represents a number's position in the sequence?

Position	1	2	3	4	n
Term	5	9	13	17	?

- A $2n + 3$
- B $5n$
- C $4n + 1$
- D $n + 4$

4 Matthew's father test-drove a new pace car for four laps at the Oglethorpe Speedway Park in Pooler. The lap numbers and his speeds are shown in the table below. Assuming that the car is capable of traveling at a high speed, which expression could be used to find the speed of the car during the fifth lap, where n represents the lap number?

Lap Number	Speed (mph)
1	96
2	104
3	112
4	120

- A $8n + 88$
- B $5n + 96$
- C $2n + 96$
- D $96(n - 1)$



Standards Practice

M8A3.f ALGEBRA Students will understand relations and linear functions. Understand and recognize arithmetic sequences as linear functions with whole number input values.

- 1 Consider the sequence below. Which linear equation expresses the relationship between the term number and the value of the term? Let x equal the term number and y equal the value of the term.

3, 7, 11, 15, 19, ...

- A $y = x + 4$ B $y = 4x - 1$
 C $y = 4x + 3$ D $y = 4x$

- 2 Postage for a first-class letter is \$0.39 for the first ounce and \$0.24 for each additional ounce. Any part of an ounce will be rounded up to the next ounce for postage cost. If x represents the number of ounces and y represents the cost, which of the following BEST shows the resulting arithmetic sequence?

A

x	y
1	\$0.39
1.5	\$0.51
2	\$0.63
2.5	\$0.75
3	\$0.87

B

x	y
1	\$0.39
2	\$0.63
3	\$0.87
4	\$1.11
5	\$1.35

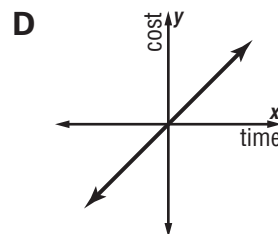
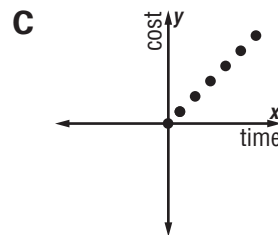
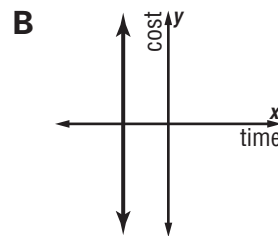
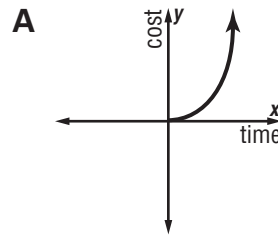
C

x	y
1	\$0.39
1.1	\$0.63
1.2	\$0.63
1.3	\$0.63
1.4	\$0.63

D

x	y
\$0.39	1
\$0.63	1.8
\$0.87	2.3
\$1.11	4.2

- 3 A phone company charges \$0.08 per minute for a long distance phone call. Call times are rounded to the nearest minute. If x is the duration of the call in minutes and y is the cost of the call, which graph BEST represents the function?





Standards Practice

M8A3.g ALGEBRA Students will understand relations and linear functions.

Interpret the constant difference in an arithmetic sequence as the slope of the associated linear function.

- 1** Students in Ms. Gerhart's science class recorded lengths of a stretched spring. Their results are shown in the table. Which equation **BEST** represents the relationship between x , the distance stretched, and y , the force on the spring?

Distance Stretched (cm) x	Force (Newtons) y
1	5
2	10
3	15
4	20
5	25

- A $y = 15x$
 B $y = 5x$
 C $y = x + 5$
 D $y = \frac{5}{x}$

- 2** Consider the following sequence.

7, 16, 25, 34, 43, ...

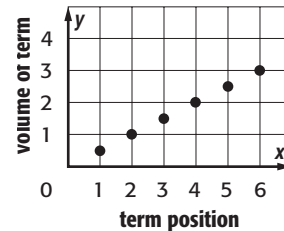
If n is the position of the term and $f(n)$ is the value of the term, what is the slope of the associated linear function?

- A 9
 B 7
 C 0
 D -9

- 3** In a recent year at the Georgia Institute of Technology, the ratio of students to faculty was approximately 13:1. Let x = the number of faculty and y = the number of students. What is the slope of the line that shows the relationship between the number of students and the number of faculty?

- A -13
 B $\frac{1}{13}$
 C 13
 D 0

- 4** The ordered pairs created by an arithmetic sequence are graphed on the coordinate grid at the right. What is the constant difference in the sequence?



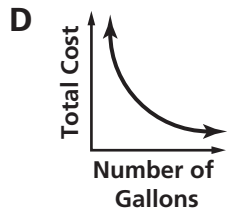
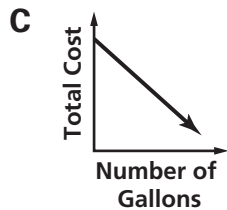
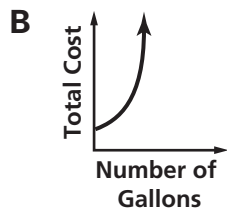
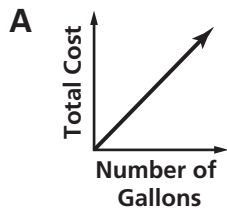
- A 2
 B 1
 C $\frac{1}{2}$
 D $\frac{1}{4}$



Standards Practice

M8A3.h ALGEBRA Students will understand relations and linear functions. Identify relations and functions as linear or nonlinear.

- 1** Identify the graph that **BEST** represents the relationship between the number of gallons of gasoline purchased g and the total cost of a tank of gasoline described by the equation $t = 2.39g$.

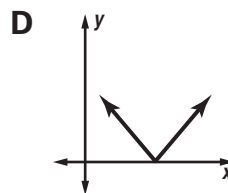
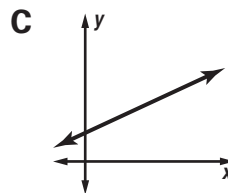
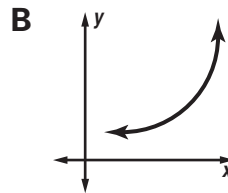
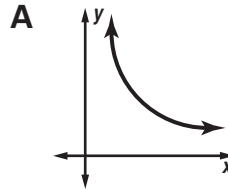


- 2** Which of the following phrases **BEST** describes the set of ordered pairs?

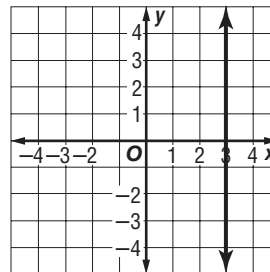
$\{(1, 4), (2, 10), (3, 22), (4, 46), (5, 94)\}$

- A** arithmetic sequence
- B** linear function
- C** linear relation
- D** nonlinear function

- 3** Which graph represents a linear relationship?



- 4** The graph of $x = 3$ is shown below. Which of the following **BEST** describes the equation and its corresponding graph?



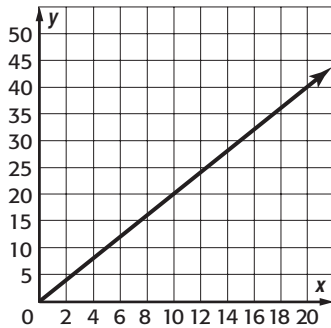
- A** linear function
- B** linear relation
- C** nonlinear function
- D** nonlinear relation



Standards Practice

M8A3.i ALGEBRA Students will understand relations and linear functions. Translate among verbal, tabular, graphic, and algebraic representations of functions.

- 1** Ms. Farley's class took a field trip to Fort Hawkins in Bibb County to study the architecture of the frontier fort. Admission to the fort was free, but students had to pay for their lunches and transportation. Below is the graph of the equation showing y , the cost for x students to go on the field trip.



Which of these sets of data matches the graph?

A

x	y
-3	2
-2	4
0	6
1	8

B

x	y
5	10
10	20
15	30
20	40

C

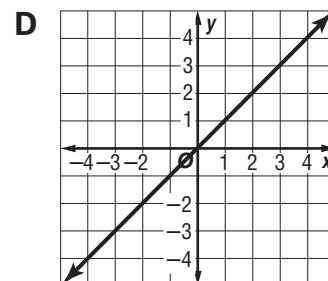
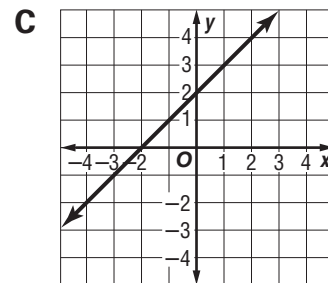
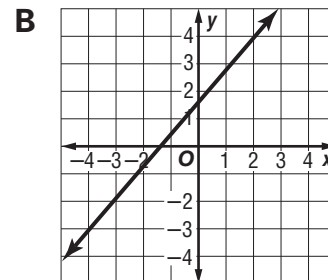
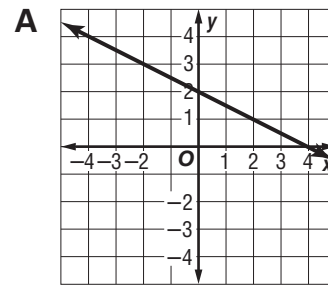
x	y
0	0
1	3
2	10
3	17

D

x	y
2	2
8	8
12	12
15	15

- 2** The table below shows the record low temperatures for three winter days in Dalton (x) and Hartwell (y). Which graph corresponds to this table?

x	y
-3	-1
0	2
3	5



Standards Practice



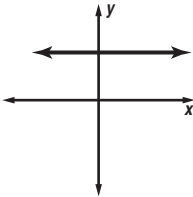
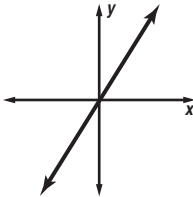
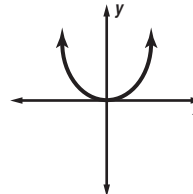
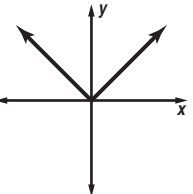
M8A3.i ALGEBRA (continued)

- 3 The owner of a health club noticed a pattern in the weekly sales of memberships. The table below shows the sales. For weeks 1 through 4, which of the following equations could represent the pattern of m memberships sold during week w ?

Week	Number of Memberships Sold
1	12
2	18
3	24
4	30

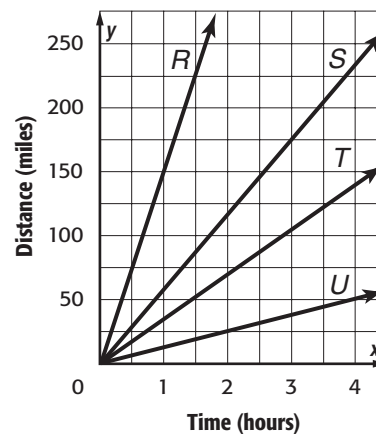
- A $m = 6w$
 B $m = 12w$
 C $m = 6(w + 6)$
 D $m = 6(w + 1)$

- 4 Which is the BEST representation of the function $y = x$?

- A  B 
- C  D 

M8A4.a ALGEBRA Students will graph and analyze graphs of linear equations. Interpret slope as a rate of change.

- 1 The distance formula is $d = rt$, where d represents the distance traveled, r represents the rate of speed that an object is traveling, and t represents the duration of the trip. Which ray on the graph BEST represents a speed of 55 mph?



- A R
 B S
 C T
 D U

- 2 An airplane flying at an altitude of 40,000 feet descends at a rate of 1,500 feet per minute. If the plane descends for 10 minutes, what is its new altitude?

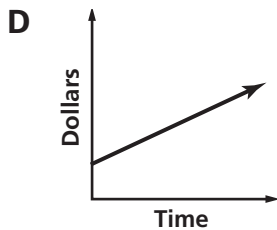
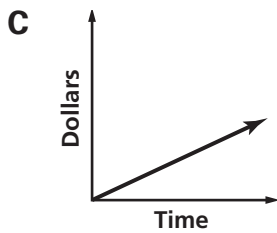
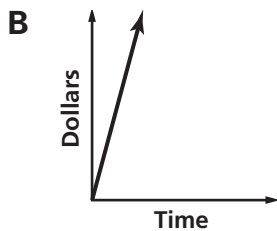
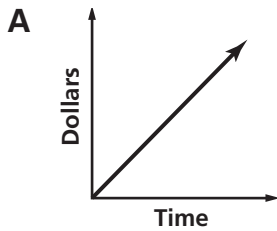
- A 10,000 ft
 B 12,500 ft
 C 15,000 ft
 D 25,000 ft



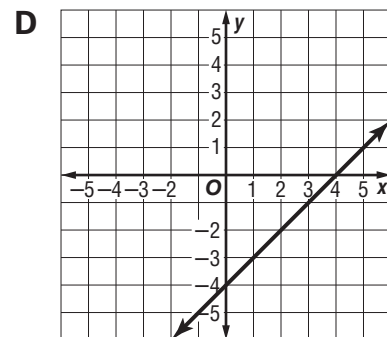
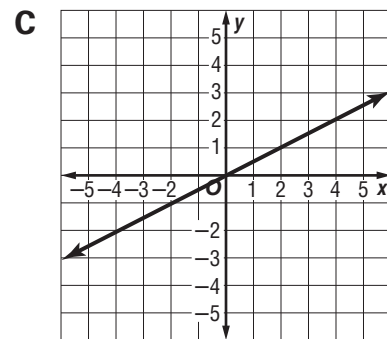
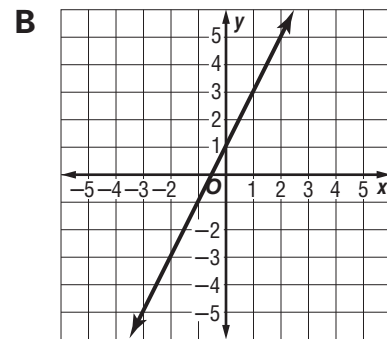
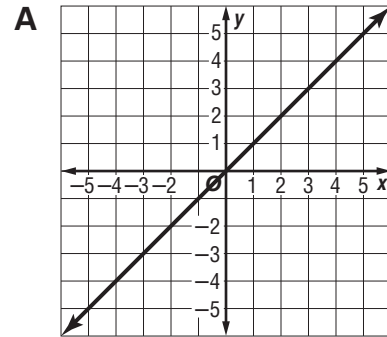
Standards Practice

M8A4.a ALGEBRA (continued)

- 3** The following graphs represent four different menu items sold at Atlanta Hawks basketball games. Which item increased in cost at the fastest rate? Assume that the scales of all four graphs are the same.



- 4** Which of the following graphs shows the least rate of change?

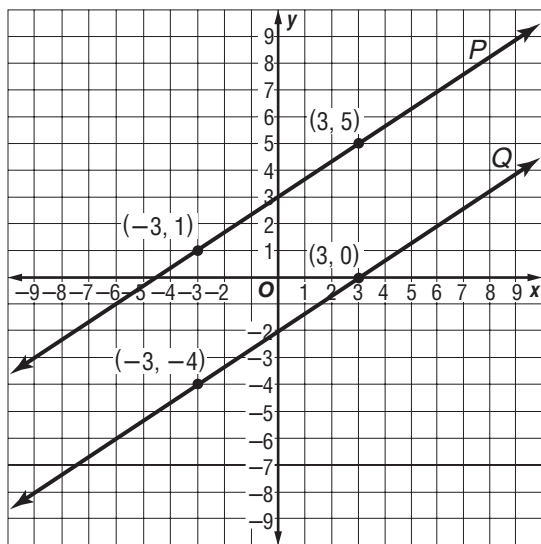




Standards Practice

M8A4.b ALGEBRA Students will graph and analyze graphs of linear equations. Determine the meaning of the slope and y -intercept in a given situation.

1 Which of the following statements is TRUE?



- A The slope of line P is greater than the slope of line Q .
- B The x -intercept of line P is greater than the x -intercept of line Q .
- C The y -intercept of line P is greater than the y -intercept of line Q .
- D The slope of line Q is greater than the slope of line P .

2 If point $(-1, 0)$ is on a line whose equation is $y = 2x + b$, what is the value of b ?

- A -1
- B 0
- C 1
- D 2

3 One room in the Northeast Georgia Animal Shelter is home to puppies and birds. A child looking in the window counts 20 animal legs. The equation $2x + 4y = 20$ models the situation, where x is the number of birds and y is the number of puppies. When the line is graphed, the y -intercept is $(0, 5)$. Which of the following BEST describes the meaning of this point?

- A The point represents an equal number of puppies and birds.
- B The point is the rate of change.
- C The point represents 0 birds and 5 puppies.
- D The point represents 0 puppies and 5 birds.

4 The growth of a live oak tree at the College of Agricultural and Environmental Sciences at the University of Georgia can be modeled by the equation $h = 0.05d + 2$. The variable h is the height of the sapling tree, and d is the number of days during which the observations take place. What does the slope of this equation represent?

- A the number of days on which the observations took place
- B the daily amount of growth
- C the initial height of the sapling tree
- D the change in the number of days

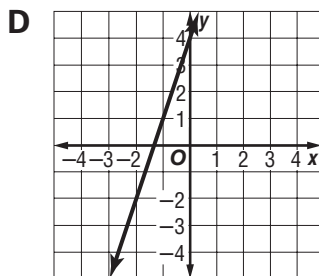
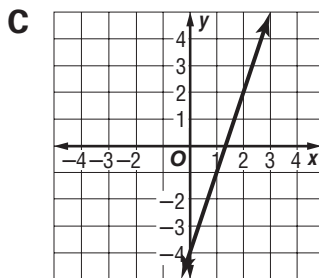
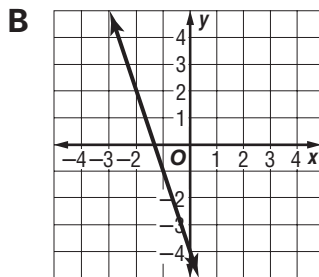
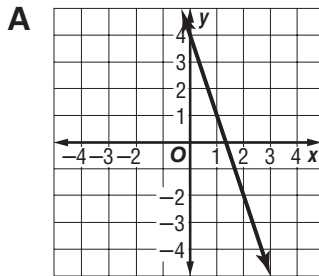


Standards Practice

M8A4.c ALGEBRA Students will graph and analyze graphs of linear equations.

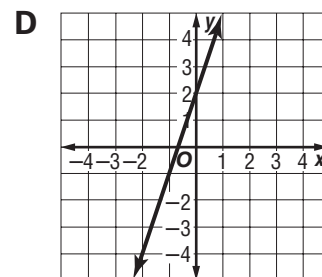
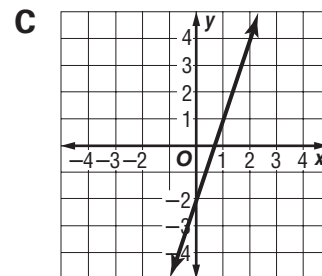
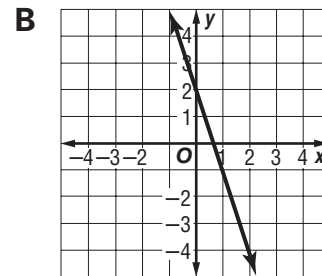
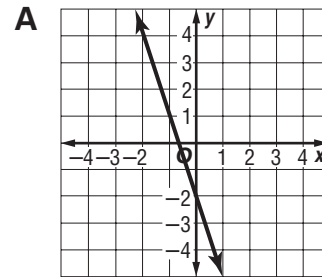
Graph equations of the form $y = mx + b$.

- 1** The equation $y = -3x + 4$ describes y , the height of a deflated balloon after x minutes. Which graph BEST represents the function?



- 2** Alex found 3 ordered pairs as a part of the solution set for $y = 3x + 2$.

He decided to plot the points $\{(0, 2), (\frac{1}{2}, 3\frac{1}{2}), (-1, -1)\}$ to find the relationship represented. Which graph did Alex draw?

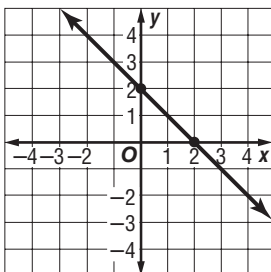


Standards Practice



M8A4.c ALGEBRA (continued)

3 Which equation BEST describes this graph?



- A $y = 2x$
- B $y = -x + 2$
- C $y = \frac{1}{2}x$
- D $y = -2x$

4 In order to draw a graph, Mitch needs to find two points on the line represented by the equation $y = -2x - 7$. Which of the following pairs of points will help Mitch graph the line correctly?

- A (2, 4) and (6, 8)
- B (-2, -3) and (0, 0)
- C (0, -7) and (2, -11)
- D (1, -9) and (3, -1)

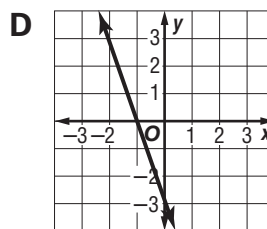
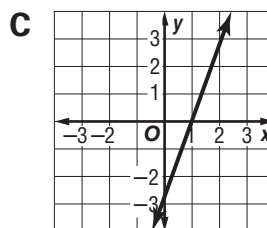
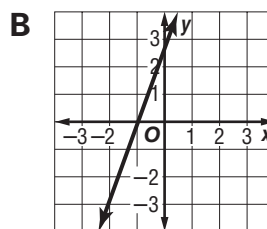
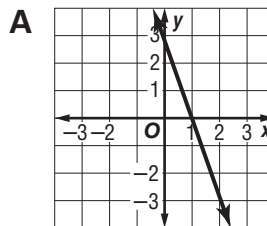
M8A4.d ALGEBRA Students will graph and analyze graphs of linear equations.

Graph equations of the form $ax + by = c$.

1 Which of the following equations in slope-intercept form represents the same line as the equation $2x - 4y = -12$?

- A $y = \frac{1}{2}x + 3$
- B $y = 2x - 4$
- C $y = -2x - 3$
- D $y = x + 6$

2 Which graph represents the equation $3x + y = -3$?

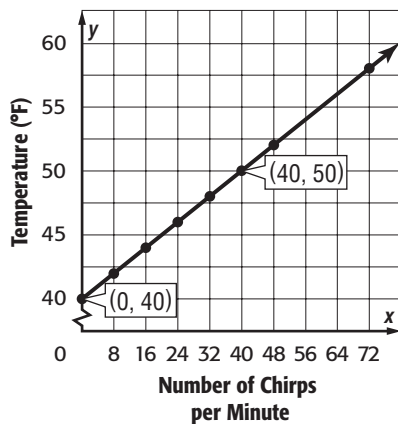




Standards Practice

M8A4.d ALGEBRA (continued)

- 3** Cara knows that she can roughly determine the temperature t of a Valdosta summer evening if she counts the number of cricket chirps n in one minute. The graph of chirps and corresponding temperatures is shown at the right. Which of the following equations BEST represents the graph?



- A** $n + t = 40$ **B** $n - 4t = -160$
C $n - t = -10$ **D** $4n + t = 210$

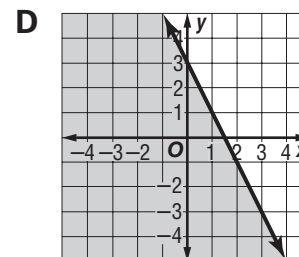
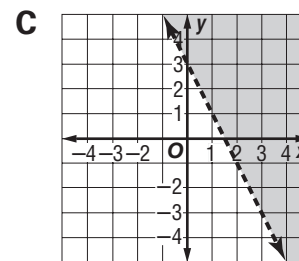
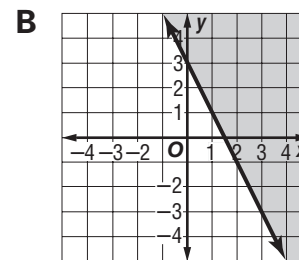
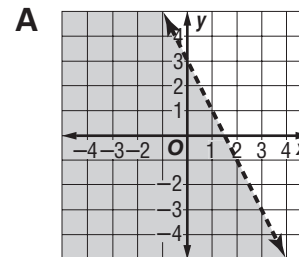
- 4** The number of Georgians aged 65 and older has been increasing since 1995 and is expected to continue to increase at a rate of about 31,600 per year through at least 2025. The linear function that represents this situation is given by the equation $31,600x - y = -717,900$, where x is the number of years after 1995, and y is the number of Georgians aged 65 and older. Which of the following pairs of points falls on the line?
- A** (0, 30) and (31,600, 65)
B (31,600, 717,900) and (0, -717,900)
C (0, 717,900) and (30, 1,665,900)
D (1, 749,500) and (-1, 749,500)

- ## M8A4.e ALGEBRA
- Students will graph and analyze graphs of linear equations and inequalities. Graph the solution set of a linear inequality, identifying whether the solution set is an open or closed half-plane.

- 1** The graph of which of the following linear inequalities is a closed half-plane?

- A** $y > 2x - 5$ **B** $y < 2x - 5$
C $y > \frac{2}{5}x$ **D** $y \geq 2x - 5$

- 2** Which of the following is the graph of $y \leq -2x + 3$?

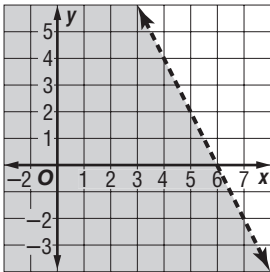




Standards Practice

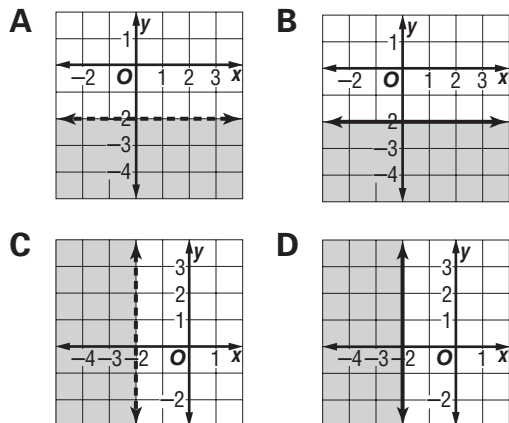
M8A4.e ALGEBRA (continued)

- 3 The graph of the linear inequality shown below is represented by which inequality?



- A $y \leq -\frac{1}{2}x + 12$
 B $y \leq -2x + 12$
 C $y \geq \frac{1}{2}x + 12$
 D $y < -2x - 12$

- 4 Which of the following is the correct graph of the inequality represented by $y < -2$?



- 5 Which ordered pair is in the half-plane described by $y \geq 2x + 5$?

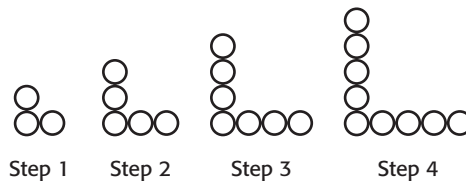
- A (0, 2) B (-1, -6)
 C (3, 12) D $(\frac{1}{2}, 5)$

- ## M8A4.f ALGEBRA
- Students will graph and analyze graphs of linear equations. Determine the equation of a line given a graph, numerical information that defines the line, or a context involving a linear relationship.

- 1 Which linear function includes the points (-3, 1) and (-2, 4)?

- A $y = -2x + 4$ B $y = -3x - 6$
 C $y = \frac{1}{3}x + 2$ D $y = 3x + 10$

- 2 The first four elements of a pattern are shown below. Let x represent the element number and y represent the number of circles in the pattern. Which of the following choices is the linear equation that represents this situation?



- A $y = 2x + 1$ B $y = x + 2$
 C $2x + y = 5$ D $x = y - 2$

- 3 A Columbus skateboard club decided to buy T-shirts for its members. A screen printing company quoted the following prices for the T-shirts. Which equation BEST describes the relationship between c , the total cost and n , the number of T-shirts?

Number of shirts	Total Cost (\$)
20	190
40	350
60	510

- A $c = n + 170$ B $c = 2n + 170$
 C $c = 8n + 30$ D $c = 10n - 90$



Standards Practice

M8A4.f ALGEBRA (continued)

4 The Foxfire Museum in Mountain City charges an admission fee of \$5.00 per person. Which of the following equations represents y , the cost for x members of a family to attend the museum?

- A $y = x + 5$
- B $x = y + 5$
- C $x = 5y$
- D $y = 5x$

M8A4.g ALGEBRA Students will graph and analyze graphs of linear equations. Solve problems involving linear relationships.

1 Fitness trainers at Jim's Gym use the following expression to determine the recommended maximum pulse rates during exercise for people of different ages. The person's age in years is A , and the maximum pulse rate in beats per minute is P .

$$P = \frac{4(220 - A)}{5}$$

If Carrie is 20 years old, what is her recommended maximum pulse rate?

- A 140
- B 160
- C 162
- D 176

2 A line segment on the coordinate plane has endpoints $(2, 6)$ and $(4, y)$. The midpoint of the segment is the point $(3, 8)$. What is the value of y ?

- A -2
- B 5
- C 10
- D 12

3 The cost of renting a DVD at a certain movie store is given by the function $y = 3x + 1$, where x is the time in days that a customer can keep the movie rental, and y is the cost of the rental. Suppose that José paid \$13 for the movie he recently rented. For how many days did he rent the movie?

- A 2
- B 3
- C 4
- D 5

4 The equation $2x + 3y + 7 = 35$ represents the total points scored by Atlanta Hawks guard Tony Delk in a basketball game. In the equation, x represents 2-point shots, and y represents 3-point shots. If Tony scored two 2-point shots, how many 3-point shots did he make?

- A 8
- B 9
- C 10
- D 12

5 Which statement is ALWAYS true for the function $y = x + 2$?

- A The value of y is always greater than the value of x .
- B The value of x is always greater than the value of y .
- C As the value of x increases, the value of y decreases.
- D When the value of x is negative, the value of y is also negative.

Standards Practice



M8A5.a ALGEBRA Students will understand systems of linear equations and use them to solve problems. Given a problem context, write an appropriate system of linear equations.

1 Lauren works at a computer store. On Monday she sold 6 more than 3 times the number of laptops than she sold on Tuesday. She sold a total of 108 laptops over the two days. Which system of equations can be used to find m , the number of laptops she sold on Monday, and t , the number of laptops she sold on Tuesday?

- A** $t = 3m - 6$
 $m + t = 108$
- B** $m = 3t + 6$
 $m + t = 108$
- C** $t = 3m + 6$
 $m + t = 108$
- D** $m = 3t - 6$
 $m + t = 108$

2 Forest rangers Carlos and Fiona each planted trees in the Chattahoochee-Oconee National Forests for Arbor Day. Carlos planted 3 times as many trees as Fiona. Fiona planted 24 fewer trees than Carlos. Which system of equations can be used to determine c , the number of trees Carlos planted, and f , the number of trees Fiona planted?

- A** $c = 3f$
 $f = c - 24$
- B** $f = 3c$
 $f = c + 24$
- C** $c = 3f$
 $c = f - 24$
- D** $f = 3c$
 $f + c = 24$

3 The first Supreme Court justice from Georgia, James M. Wayne, began his term in 1835. He served for 2 years more than 5 times the number of years served by the next Georgian justice, William B. Woods. The two justices served a combined total of 38 years on the Supreme Court. Let j be the number of years served by Justice James M. Wayne, and let w be the number of years served by Justice William B. Woods. Which system of equations can be used to find the length of their terms?

- A** $2w + 5 = j$
 $j + w = 38$
- B** $2w - 5 = j$
 $j + w = 38$
- C** $5w - 2 = j$
 $j + w = 38$
- D** $5w + 2 = j$
 $j + w = 38$

4 Joshua mows lawns during the summer to earn money. One week he earned \$25 less than 4 times as much money as he did the previous week. He earned a total of \$225 over the two weeks. Which system of equations can be used to find s , the amount of money Joshua earned the second week, and f , the amount of money he earned the first week?

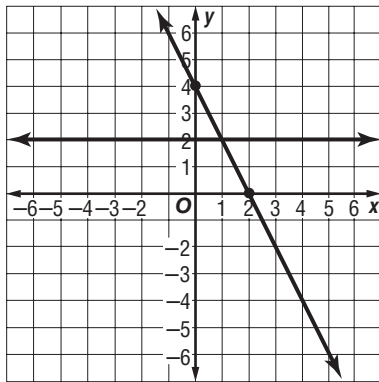
- A** $s = 25f - 225$
 $s + f = 25$
- B** $s = 4f + 25$
 $s - f = 225$
- C** $f = 4s - 25$
 $s + f = 225$
- D** $s = 4f - 25$
 $s + f = 225$



Standards Practice

M8A5.b ALGEBRA Students will understand systems of linear equations and use them to solve problems. Solve systems of equations graphically and algebraically, using technology as appropriate.

- 1** The solution to a set of linear equations is graphed. Which of the following could be the set of equations?



- A** $2x + y = 4$
 $y = 2$
- B** $2x + y = -4$
 $y = 1$
- C** $x = 1$
 $x + 2y = 4$
- D** $x = 1$
 $x + y = 4$

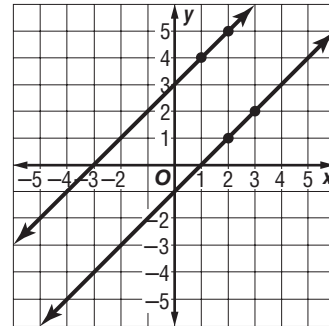
- 2** Mr. Taylor's grocery store orders fruit from a wholesaler. One package containing 20 dozen watermelons and 34 dozen peaches costs \$504. A second package containing 15 dozen watermelons and 17 dozen peaches costs \$327. This information can be represented by the system of equations below, where w is the cost of one dozen watermelons and p is the cost of one dozen peaches. Solve the system to find the cost of one dozen watermelons.

$$20w + 34p = 504$$

$$15w + 17p = 327$$

- A** \$6
- B** \$12
- C** \$15
- D** \$16

- 3** The equations of two lines are graphed below. What is the solution of the system?



- A** The system has infinitely many solutions.
- B** The system has no solution.
- C** (0, 3)
- D** (1, 4) and (2, 5)

Standards Practice



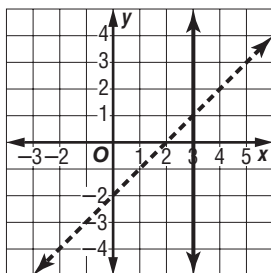
M8A5.c ALGEBRA Students will understand systems of linear equations and inequalities and use them to solve problems. Graph the solution set of linear inequalities in two variables.

- 1** Which ordered pair is NOT in the solution set of the system of inequalities below?

$$\begin{aligned} y &< 0 \\ x &\geq 0 \end{aligned}$$

- A** (2, -3)
B (0, -4)
C (0, 0)
D (4, -2.5)

- 2** The solution to the system of linear inequalities given by $x \leq 3$ and $y > x - 2$ is which of the four labeled regions in the graph below?



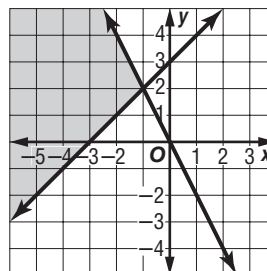
- A** P **B** Q
C R **D** T

- 3** How many points are in the solution set for the system of inequalities shown below?

$$\begin{aligned} y &\geq 2x + 3 \\ y &\leq -3x - 1 \end{aligned}$$

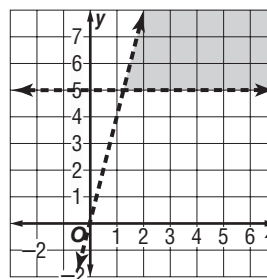
- A** none **B** 1
C 2 **D** infinite

- 4** Which system of linear inequalities is represented by the graph below?



- A** $y \geq x + 3$
 $y \geq -2x$
B $y \geq x + 3$
 $y \leq -2x$
C $y \leq x + 3$
 $y \geq -2x$
D $y \leq x + 3$
 $y \leq -2x$

- 5** Which system of linear inequalities is represented by the graph below?



- A** $y < 5$ **B** $y < 5$
 $y < 4x$ $y > 4x$
C $y > 5$ **D** $y > 5$
 $y < 4x$ $y > 4x$

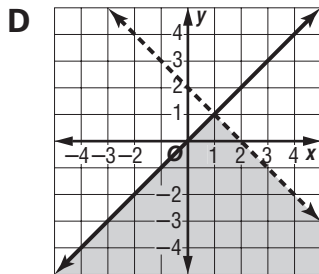
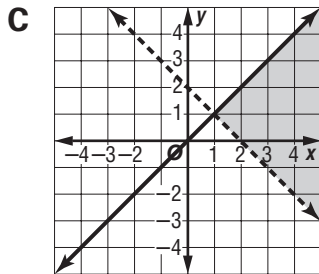
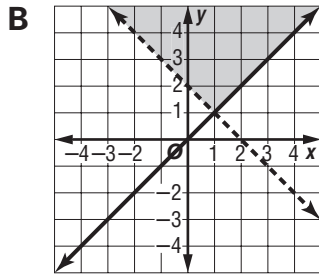
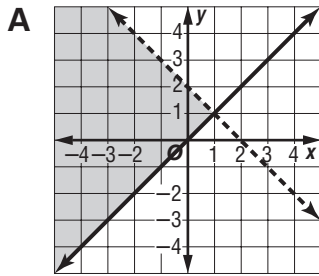


Standards Practice

M8A5.c ALGEBRA (continued)

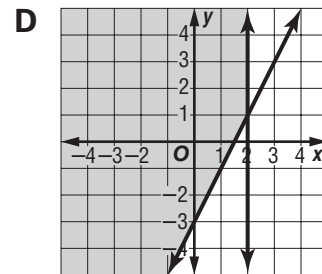
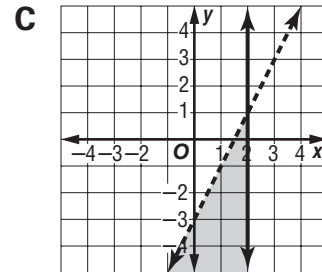
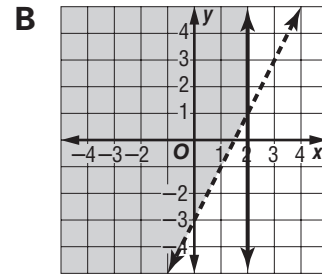
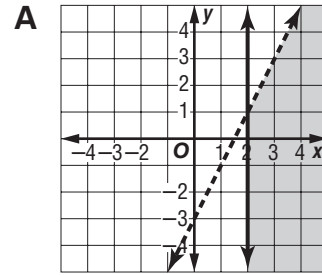
6 Which of the following graphs represents the system of inequalities below?

$$\begin{aligned} y &\leq x \\ y &> 2 - x \end{aligned}$$



7 Which graph represents the solution set for the system of linear inequalities below?

$$\begin{aligned} y &> 2x - 3 \\ x &\leq 2 \end{aligned}$$





Standards Practice

M8A5.d ALGEBRA Students will understand systems of linear equations and use them to solve problems. Interpret solutions in problem contexts.

- 1** A rental car company at Hartsfield-Jackson International Airport offers two rental plans.

Plan A: \$30 per day with unlimited mileage

Plan B: \$20 per day plus 10 cents per mile

If x is the number of miles driven in one day and y is the cost of the rental per day, the break-even point, or the point at which both plans cost the same, is $(100, 30)$. Which of the following statements is FALSE?

- A** Plan A is less expensive if the car is driven over 100 miles per day.
- B** Plan B is less expensive if the car is driven under 100 miles per day.
- C** Plan B is always less expensive if the car is driven under 100 miles for a 3-day trip.
- D** Plan A is always less expensive if the car is driven over 100 miles for a 3-day trip.

- 2** Chase and Dana went to the movies a total of 11 times last month. Dana went one fewer than twice as many times as Chase did. How many times did each person go to the movies last month? Write and solve a system of equations to help you find the answer.

- A** Chase went 4 times, and Dana went 7 times.
- B** Chase went 7 times, and Dana went 4 times.
- C** Chase went 5 times, and Dana went 6 times.
- D** Chase went 2 times, and Dana went 9 times.

- 3** Suppose that a band director must order 35 uniforms for the new members of the band. The number of new men is five more than twice the number of new women. How many uniforms of each type must the band director order? Use a system of equations to help you find the answer.

- A** 15 women's uniforms and 20 men's uniforms
- B** 12 women's uniforms and 23 men's uniforms
- C** 10 women's uniforms and 25 men's uniforms
- D** 5 women's uniforms and 30 men's uniforms

- 4** Tamara does a cost analysis to determine whether her little sister's lemonade stand will be profitable. She determines that the equation that models her sister's lemonade stand expenses is $d = 0.10n + 12.00$, where d is the expense in dollars and n is the number of cups of lemonade sold. The equation that models her sister's income is $d = 0.50n$, where d is the income in dollars and n is the number of cups sold. What can be determined from the system of equations?

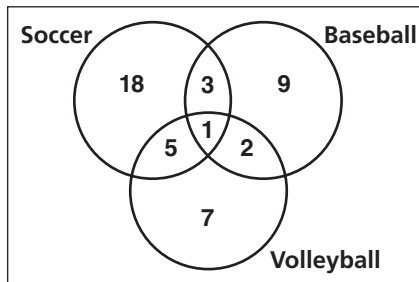
- A** The break-even point, or intersection point, is $(30, 15)$.
- B** The expenses will always be more than the income for any value of n .
- C** The profit will be \$15 for any value of n .
- D** The profit will always be \$30, no matter how many cups of lemonade are sold.



Standards Practice

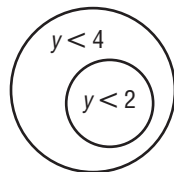
M8D1.a DATA ANALYSIS AND PROBABILITY Students will apply basic concepts of set theory. Demonstrate relationships among sets through use of Venn diagrams.

- 1** Ms. Nelson constructed a Venn diagram that shows the number of eighth-grade athletes who play volleyball, baseball, and/or soccer. Which phrase best identifies the group of two students?



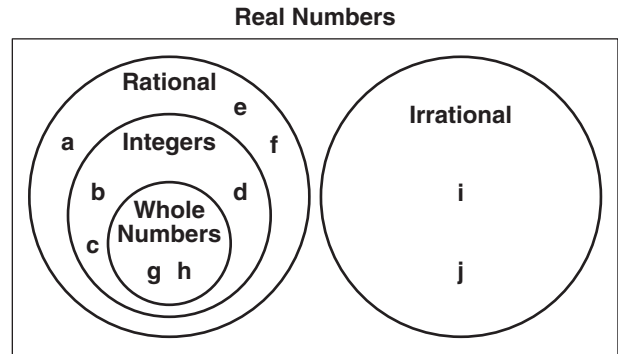
- A** the total number of athletes who do not play soccer or volleyball
B the total number of athletes who play all three sports
C the total number of athletes who do not play soccer
D the total number of athletes who play both baseball and volleyball but not soccer

- 2** Which of the following numbers is a member of both sets in the diagram?



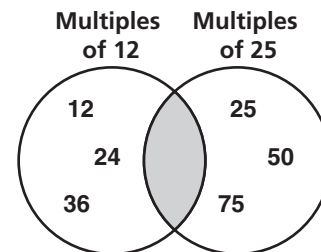
- A** -2
B 2
C 4
D 6

- 3** The diagram shows how subsets of the set of real numbers are related. The letters represent numbers in the sets. Which letter could be replaced with -4 ?



- A** a
B c
C g
D j

- 4** Demetrius is entering numbers in the Venn diagram. What is the least number that he can correctly place in the shaded area of the diagram?



- A** 600
B 450
C 300
D 150

Standards Practice



M8D1.b DATA ANALYSIS AND PROBABILITY Students will apply basic concepts of set theory. Determine subsets, complements, intersection, and union of sets.

1 The students in classes A and B worked to raise money for new computers. In class A , the students raised \$48, \$67, \$85, \$104, \$53, \$39, and \$100. In class B , the students raised \$67, \$114, \$67, \$80, \$55, and \$85. Which represents the subset $A \cup B$?

- A** {\$39, \$48, \$53, \$55, \$67, \$80, \$85, \$100, \$104, \$114}
- B** {\$39, \$48, \$53, \$55, \$80, \$100, \$104, \$114}
- C** {\$67, \$85}
- D** {\$48, \$53, \$55, \$67, \$80, \$85, \$100, \$104}

2 As the student council president, Margo prepared for the principal a report describing student council members' participation in community service activities. In her report, Margo stated that 43 students participated in service projects at school and 18 students participated in service projects in the city. If $A \cup B$ is 55 students, how many students belong to the subset $A \cap B$?

- A** 55
- B** 37
- C** 12
- D** 6

3 Consider the following sets where x is a real number.

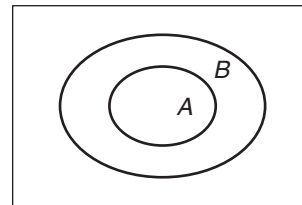
$$\text{Set } A: x \geq -4$$

$$\text{Set } B: x < -4$$

Which of the following is TRUE of the relationship between Set A and Set B ?

- A** Set A is a subset of Set B .
- B** Set A is the complement of Set B .
- C** The intersection of the sets contains real numbers between -4 and 0 .
- D** The union of the sets has no elements.

4 Which of the following best describes the relationship between Sets A and B in the diagram?



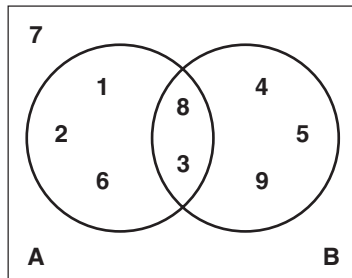
- A** $A = B$
- B** $A \cap B = B$
- C** $A \subseteq B$
- D** $A' = B$



Standards Practice

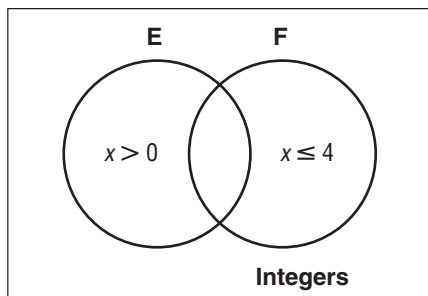
M8D1.c DATA ANALYSIS AND PROBABILITY Students will apply basic concepts of set theory. Use set notation to denote elements of a set.

- 1** Consider the Venn diagram. Which of the following correctly shows all of the elements of $A \cup B$?



- A** $\{1, 2, 3, 6, 8, 9, 11\}$
B $\{1, 2, 3, 4, 5, 6, 8, 9\}$
C $\{3, 8\}$
D $\{7\}$

- 2** Consider the Venn diagram in which x is an integer. Which of the following correctly shows all of the elements of $E \cap F$?



- A** $\{0\}$
B $\{-5, -4, -3, -2, -1, 0, 1, 2, 3, 4\}$
C $\{0, 1, 2, 3, 4\}$
D $\{1, 2, 3, 4\}$

- 3** Let Set C = prime numbers less than 20.
 Let Set D = odd numbers less than 20.
 Which of the following correctly shows all of the elements of $C \cap D$?
- A** $\{1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19\}$
B $\{1, 3, 5, 11, 13, 15, 17, 19\}$
C $\{3, 5, 7, 11, 13, 17, 19\}$
D $\{3, 11, 19\}$

Use the following sets to answer Questions 4 and 5.

$$\text{Set } A = \{1, 3, 4, 5, 7, 8\}$$

$$\text{Set } B = \{2, 4, 6, 8\}$$

$$\text{Set } C = \{1, 3, 5, 7\}$$

$$\text{Set } D = \{1, 2, 3\}$$

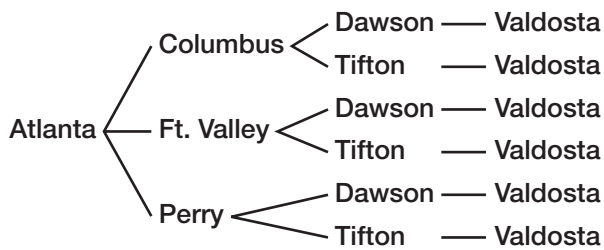
- 4** Which is the complete list of elements for $A \cap D$?
- A** $\{1, 2, 3, 4, 5, 7, 8\}$
B $\{2, 4, 5, 7, 8\}$
C $\{1, 3\}$
D \emptyset
- 5** Which is the complete list of elements for $B \cap C$?
- A** $\{1, 2, 3, 4, 5, 6, 7, 8\}$
B $\{2, 4, 6, 8\}$
C $\{1, 3, 5, 7\}$
D $\{2\}$



Standards Practice

M8D2.a DATA ANALYSIS AND PROBABILITY Students will determine the number of outcomes related to a given event. Use tree diagrams to find the number of outcomes.

1 The following tree diagram shows several routes for traveling from Atlanta to Valdosta. According to the tree diagram, how many different routes are possible?



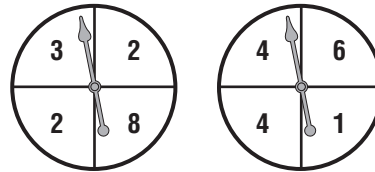
- A 6
- B 4
- C 3
- D 1

2 The advertisement appears in the window of Cameron’s favorite pizzeria. How many combinations of one hot food, one cold food, and one drink are possible for the lunch special?

Pizza Lunch Special \$4		
Hot (choose 1)	Cold (choose 1)	Drink (choose 1)
cheese pizza	salad	soda
pepperoni pizza	fruit	tea
$\frac{1}{2}$ sub		water

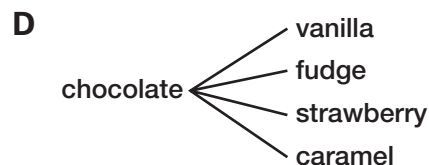
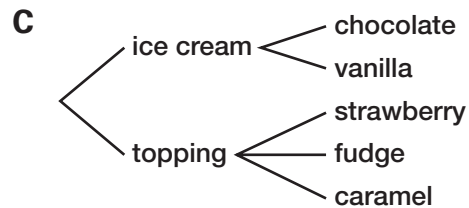
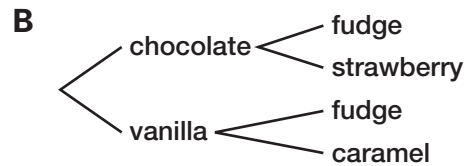
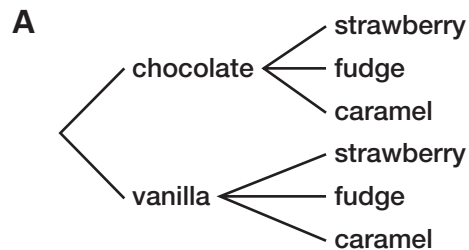
- A 8
- B 12
- C 18
- D 27

3 Ethan spins each spinner once and writes the numbers as an ordered pair. Using a tree diagram to help you, determine how many outcomes are possible.



- A 8
- B 9
- C 12
- D 16

4 An ice cream shop makes sundaes with chocolate or vanilla ice cream and strawberry, fudge, or caramel topping. Which tree diagram shows all possible flavor combinations of sundaes with one flavor of ice cream and one topping?





Standards Practice

M8D2.b DATA ANALYSIS AND PROBABILITY Students will determine the number of outcomes related to a given event. Apply the addition and multiplication principles of counting.

1 Jack is away at camp. He has three pairs of jeans and five T-shirts. How many possible outfits can he make?

- A 3
- B 5
- C 8
- D 15

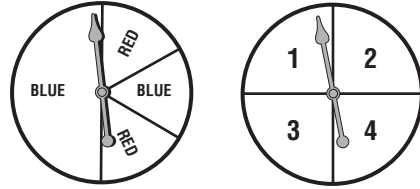
2 Avery's Pie Stand serves 12 different flavors of pie, 4 frozen yogurt flavors, and 5 different types of toppings. If Avery's Pie Special consists of one slice of pie, one scoop of frozen yogurt, and one topping, how many different Pie Specials can Avery serve?

- A 300
- B 240
- C 21
- D 12

3 Two number cubes are each numbered 1 to 6. They are rolled at the same time. How many possible outcomes are there?

- A 6
- B 11
- C 12
- D 36

4 How many outcomes are possible if each spinner is spun once?



- A 16
- B 8
- C 4
- D 2

5 Bill's Bagel Shack offers five different bagel spreads. They also offer tomatoes, onions, eggs, and ham as side orders. How many different combinations of one bagel spread and one side could be offered?

- A 6
- B 9
- C 20
- D 25

6 Justina is buying a new school sweatshirt. The sweatshirts come in green, yellow, or gray and in sizes medium, large, and x-large. How many possible combinations are there?

- A 9
- B 12
- C 15
- D 18



Standards Practice

M8D3.a DATA ANALYSIS AND PROBABILITY Students will use the basic laws of probability. Find the probability of simple independent events.

- 1** In a survey of bicycle owners living in downtown Atlanta, people were asked how many bicycles they owned and whether any had been stolen during the previous year. The results indicated that people in the city owned 25,410 bicycles, and of these, 2,520 had been stolen. Given this information, which conclusion is **MOST** reasonable?
- A** No Atlanta bicycle owners will have their bicycles stolen this year.
 - B** All Atlanta bicycle owners will have their bicycles stolen this year.
 - C** The probability that any one bicycle will be stolen is about $\frac{1}{5}$.
 - D** The probability that any one bicycle will be stolen is about $\frac{1}{10}$.
- 2** Lacy's cat had 5 kittens. If 4 of them are brown and 1 is white, what is the probability that the first one born was a white kitten?
- A** $\frac{1}{5}$
 - B** $\frac{1}{3}$
 - C** $\frac{2}{3}$
 - D** $\frac{4}{5}$

3 Below are the sides of a number cube used in a game. Brian will win the game he is playing if he gets a number less than 3 the next time he rolls the number cube. What is the probability that Brian will win the game on his next roll?



- A** $\frac{1}{6}$
- B** $\frac{1}{3}$
- C** $\frac{1}{2}$
- D** $\frac{2}{3}$

4 Nina wrote the letters of the following word on index cards, with one letter on each card.



Nina put the index cards in a bag. If she pulls one of the cards from the bag without looking, what is the probability of pulling the letter B?

- A** $\frac{11}{2}$
- B** $\frac{9}{2}$
- C** $\frac{2}{11}$
- D** $\frac{1}{10}$



Standards Practice

M8D3.b DATA ANALYSIS AND PROBABILITY Students will use the basic laws of probability. Find the probability of compound independent events.

1 Chad does a magic trick involving a deck of ten cards. The cards are numbered one through ten. Chad asks Tiesha to draw a card, look at it, and replace it in the deck. He then asks her to draw again. What is the probability that Tiesha will draw a seven both times?

- A $\frac{1}{5}$
- B $\frac{1}{10}$
- C $\frac{1}{20}$
- D $\frac{1}{100}$

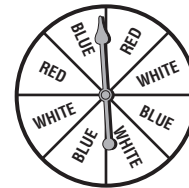
2 Emory University's undergraduate program has over 12,000 applicants per year. Of those, about 10% are accepted. Friends Mark and Hal both applied to Emory University this year. Assuming that they and all applicants have equal chances of acceptance, what is the probability that both Mark and Hal will be accepted to Emory?

- A 1%
- B 10%
- C 20%
- D 50%

3 Five neighbors on the same street are all due to have babies this summer. Assuming that the chances of having a boy or a girl are equal, and that these events are independent of one another, what is the probability that all five will be boys?

- A $\frac{5}{2}$
- B $\frac{1}{5}$
- C $\frac{1}{2}$
- D $\frac{1}{32}$

4 Consider the spinner below, in which all sections are equal in size. What is the probability of the spinner's stopping on blue three spins in a row?



- A $\frac{5}{8}$
- B $\frac{9}{64}$
- C $\frac{27}{512}$
- D $\frac{1}{24}$



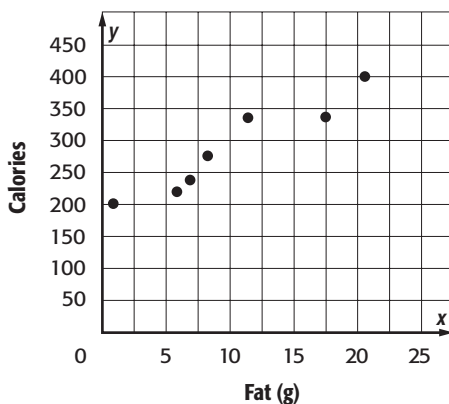
Standards Practice

M8D4.a DATA ANALYSIS AND PROBABILITY Students will organize, interpret, and make inferences from statistical data. Gather data that can be modeled with a linear function.

- 1** In a group of 50 people at a school concert, 45 are right-handed and the rest are left-handed. Charlotte determines that this probably represents a linear relationship that can be modeled with the equation $y = 0.9x$, where x is the number of people in a group and y is the number of people in that group who are right-handed. If she questioned 30 randomly chosen people in the cafeteria, how many would Charlotte expect to be right-handed?

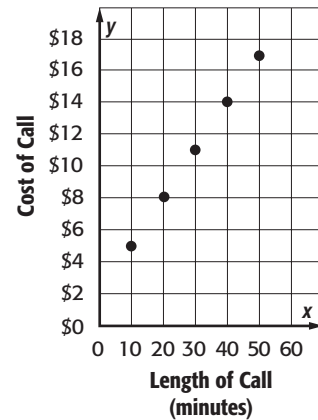
A 45 **B** 27
C 25 **D** 3

- 2** The scatter plot below shows the fat and calorie content of several snack foods. Which of the following linear equations best represents the data?



A $y = 10x + 190$
B $y = x + 190$
C $y = 190x + 10$
D $y = 190x$

- 3** Kelly kept track of the length and cost of phone calls to her brother in Germany. She organized her data in the scatter plot below. Which of the following linear equations best represents the data?



A $y = \frac{3}{10}x + 2$ **B** $y = 3x + 3$
C $y = 10x - 3$ **D** $y = \frac{1}{3}x + 2$

- 4** Calvin read that a person's maximum adult height is usually equal to double that person's height at age two. To test this theory, Calvin asks five fully-grown adult family members for their current height and their height at age two. The table below shows Calvin's data. Which of the following linear equations BEST represents the information?

Height at Age 2 (inches) x	Adult Height (inches) y
37	74
33	66
34	68
35	70
31	62

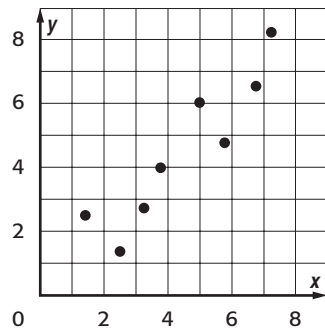
A $y = x + 2$ **B** $x = 2y$
C $y = x + 37$ **D** $y = 2x$



Standards Practice

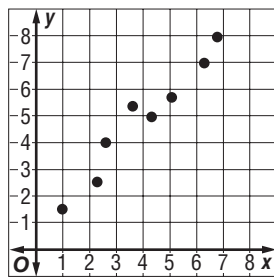
M8D4.b DATA ANALYSIS AND PROBABILITY Students will organize, interpret, and make inferences from statistical data. Estimate and determine a line of best fit from a scatter plot.

- 1** Estimate the location of a line of best fit for the scatter plot. Which of the following **BEST** describes the data presented in the scatter plot?



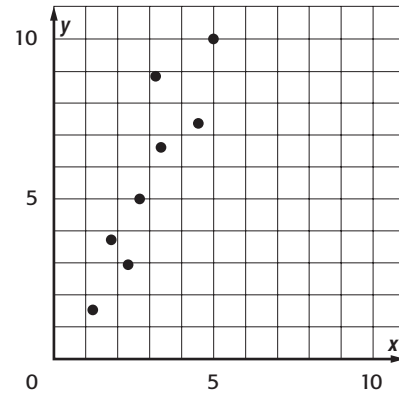
- A positive correlation
 B negative correlation
 C no correlation
 D both positive and negative correlation

- 2** Which equation represents a line of best fit for the data on the graph?



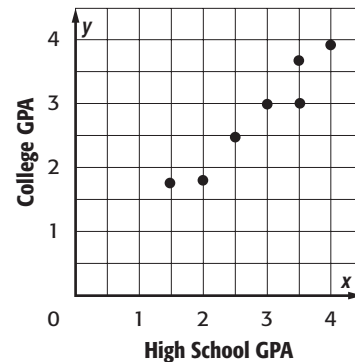
- A $y = x$
 B $y = 2x$
 C $y = 2x + 1$
 D $y = x + 1$

- 3** Which equation represents a line of best fit for the data on the graph?



- A $y = \frac{1}{2}x$
 B $y = -\frac{1}{2}x$
 C $y = 2x$
 D $y = -2x$

- 4** The scatter plot shows the high school and college grade point averages of seven students who attend Oglethorpe University. Which equation represents a line of best fit for the data?



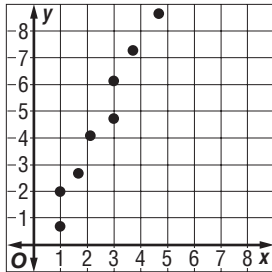
- A $y = x + 4$
 B $y = x$
 C $y = -x$
 D $y = 4x$



Standards Practice

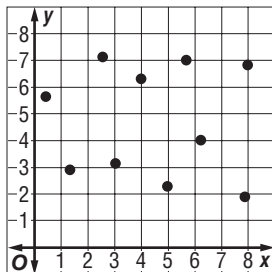
M8D4.b DATA ANALYSIS AND PROBABILITY (continued)

- 5 Which equation represents a line of best fit for the data on the graph?



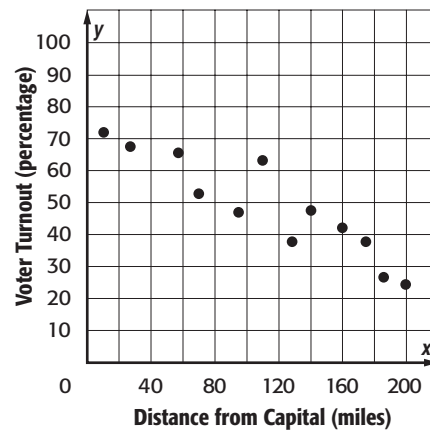
- A $y = 4x$
- B $y = 3x + 1$
- C $y = 2x - 1$
- D $y = x - 1$

- 6 Estimate the location of a line of best fit for the scatter plot. Which of the following BEST describes the data in the scatter plot?



- A no correlation
- B both positive and negative correlation
- C positive correlation
- D negative correlation

- 7 For a class project, Deborah must research voter turnout across her state. She finds that towns located farther from the state capital tend to have lower percentages of voter turnout than do towns located closer to the capital. Deborah makes the scatter plot below to show the data she has collected from a dozen towns located farther than ten miles from the capital. Which of the following BEST describes the data in the scatter plot?



- A positive correlation
- B negative correlation
- C no correlation
- D both positive and negative correlations

Sample Test



Choose the best answer for each question.

- 1 Wendy tosses three fair coins. What is the probability that all three coins will land tails up?

A $\frac{1}{2}$ B $\frac{1}{4}$
 C $\frac{1}{8}$ D $\frac{1}{16}$

- 2 Which of the following ordered pairs is NOT a solution to the equation?

$$y = \frac{2}{3}x + 1$$

A (0, 1)
 B (3, 3)
 C (7, 11)
 D (12, 9)

- 3 Which of the following ordered pairs is NOT a solution to the equation?

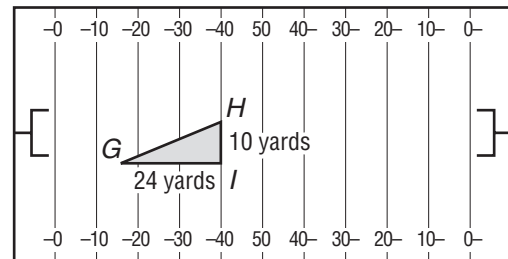
$$y^2 = x$$

A (0, 0) B (4, -2)
 C (4, 2) D (-9, -3)

- 4 The Georgia General Assembly is a bicameral body consisting of the House of Representatives and the Senate. The number of members of the House is 12 more than 3 times the number of senators. The total number of legislators in the General Assembly is 236. How many senators and representatives are in the Georgia General Assembly?

A 75 senators; 161 representatives
 B 64 senators; 172 representatives
 C 56 senators; 180 representatives
 D 50 senators; 186 representatives

- 5 Central High School marching band has the following formation in its halftime show. The drawing shows where band members will stand. How many yards apart are the band members standing at points *G* and *H*?



A 14 yards B 26 yards
 C 30 yards D 34 yards

- 6 Sarah collected data on the ages and heights of a random sample of sixth-, seventh-, and eighth-grade students at her school. She plotted the data points on a scatter plot. What relationship between age and height is the scatter plot likely to show?

A positive correlation
 B negative correlation
 C no correlation
 D both positive and negative correlations

- 7 The slope-intercept form of a line is given by $y = mx + b$. Solve this for m .

A $m = \frac{y}{x} - b$
 B $m = y - b + x$
 C $m = \frac{y - b}{x}$
 D $m = \frac{y - x}{b}$

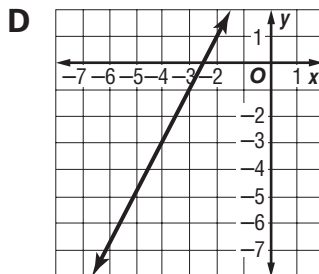
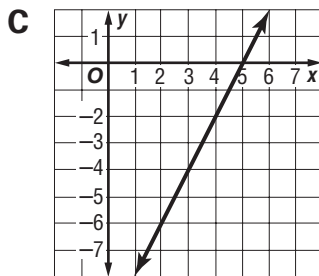
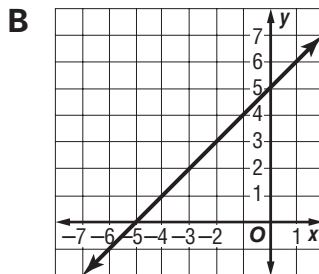
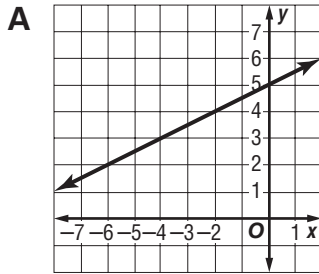




Sample Test (continued)

8 Which line graphed below BEST represents the table of ordered pairs?

x	5	4	3	2
y	0	-2	-4	-6



9 At the time of the 1990 census, the population of Georgia was about 6,500,000. Which of the following represents this number in scientific notation?

- A 6.5×10^{-6} B 6.5^6
 C 6.5×10^5 D 6.5×10^6

10 Mrs. Sloan's age is 4 years less than 3 times Nick's age. If Nick is n years old, which of the following represents Mrs. Sloan's age?

- A $4 - 3n$ B $3n - 4$
 C $3(4 - n)$ D $3(n - 4)$

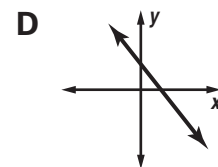
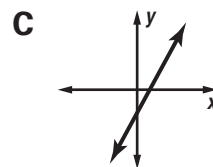
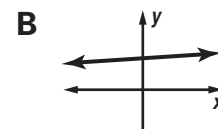
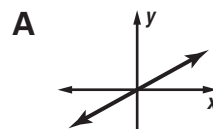
11 The table shows the cost in cents c for a cell phone call that lasts m minutes.

m	c
1	20
2	28
3	36
4	44

Which equation best describes the relationship?

- A $c = 20m + 12$
 B $c = 20m$
 C $c = 8m + 20$
 D $c = 8m + 12$

12 Which of the lines graphed below has the greatest positive slope?



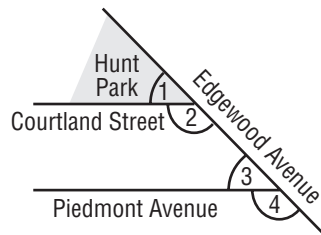


Sample Test (continued)

- 13** Which expression describes the area in square units of a rectangle that has a width of $4x^3y^2$ and a length of $8x^3y^3$?

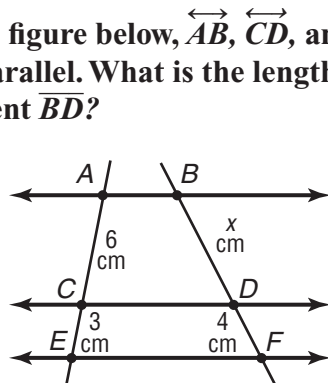
A $32x^9y^6$
 B $32x^6y^5$
 C $12x^9y^6$
 D $4y^1$

- 14** Surveying students from Georgia State University created the following plan, which shows three local streets. The students determined that each street is a straight line, that Courtland Street and Piedmont Avenue are parallel, and that $\angle 4$ measures 120° . What is the measure of $\angle 1$?



A 45° B 60°
 C 90° D 120°

- 15** In the figure below, \overleftrightarrow{AB} , \overleftrightarrow{CD} , and \overleftrightarrow{EF} are parallel. What is the length of segment \overline{BD} ?

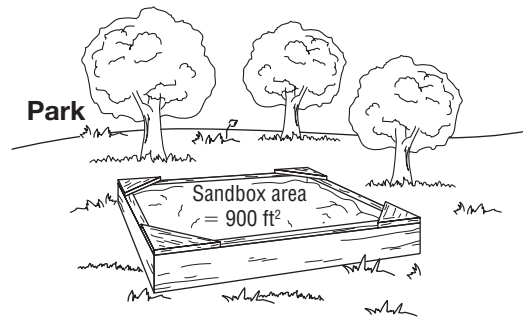


A 6 cm
 B 7 cm
 C 8 cm
 D 9 cm

- 16** $\sqrt{250}$ is between which two integers?

A 15 and 16
 B 16 and 17
 C 17 and 18
 D 18 and 19

- 17** The Centerville Parks Department is planning a new sandbox for children at the city park. If the square sandbox is to have an area of 900 square feet, what is the length of each side of the sandbox?



A 450 ft
 B 225 ft
 C 45 ft
 D 30 ft

- 18** Kyle has four different colored vases on a shelf in his apartment. How many different ways can he arrange the vases next to one another on a shelf?

A 4 B 10
 C 16 D 24

- 19** Which subset of the real numbers contains $\sqrt{23}$?

A irrational numbers
 B rational numbers
 C integers
 D whole numbers



Sample Test (continued)



20 It is estimated that between 56,000 and 57,000 people were living in Georgia in 1780. Which number line represents the 1780 Georgia population?

- A** **B**
- C** **D**

21 Which of the following BEST represents a relation?

- A**
- B**

x	y
-1	0
4	3
5	7

- C** (3, 4)
D 3, 5, 7, 9, 11, 13, ...

22 Consider the sequence below.
 Which linear equation expresses the relationship between the term number and the value of the term? Let x equal the term number and y equal the value of the term.

2, 5, 8, 11, 14, ...

- A** $y = x + 3$
B $y = 3x - 1$
C $y = 3x + 3$
D $y = 3x$

23 Which of the following is the correct graph of $x - 2y = -4$?

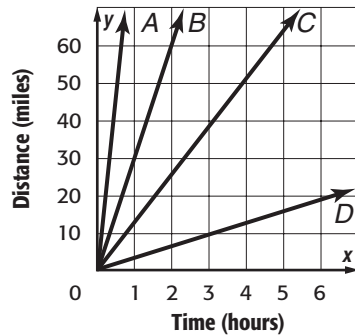
- A**
- B**
- C**
- D**





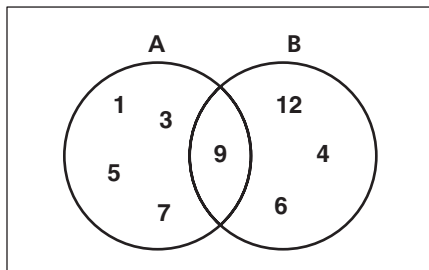
Sample Test (continued)

- 24** In the distance formula $d = rt$, r represents the rate of change, or slope. Which ray on the graph represents a slope of 30 miles per hour?



- A** A
B B
C C
D D

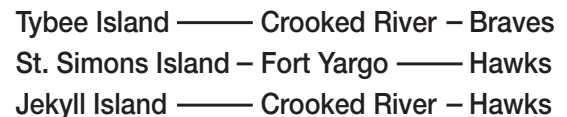
- 25** Which of the following is a complete list of the elements in Set A or Set B , but NOT in $A \cap B$?



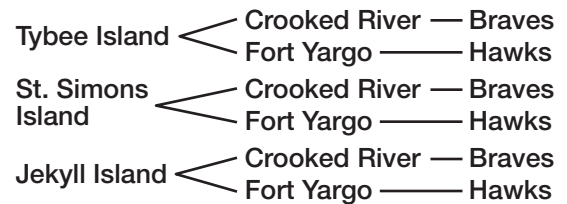
- A** $\{1, 3, 4, 5, 6, 7, 9, 12\}$
B $\{9\}$
C \emptyset
D $\{1, 3, 4, 5, 6, 7, 12\}$

- 26** For spring vacation, Leah's family is going to one Georgia beach, one Georgia state park, and one professional sporting event in Atlanta. The beach choices are Tybee Island, St. Simons Island, or Jekyll Island. The state park choices are Crooked River State Park or Fort Yargo State Park. The sport choices are an Atlanta Hawks basketball game or an Atlanta Braves baseball game. Which tree diagram shows all of the possible combinations for the family vacation?

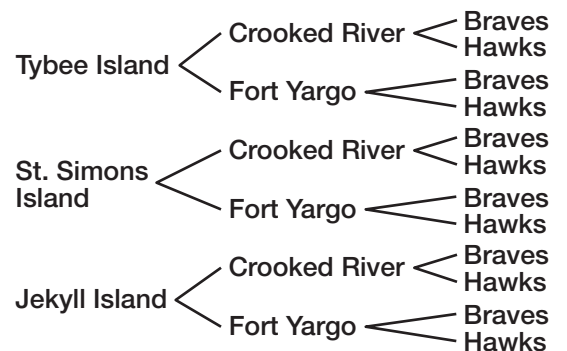
A



B



C



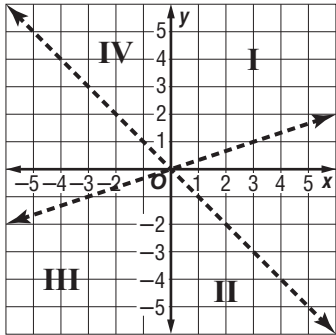
D





Sample Test (continued)

- 27 The solution to the system of linear inequalities $y > -x$ and $y < \frac{1}{3}x$ is which region in the graph below?



- A I B II
C III D IV

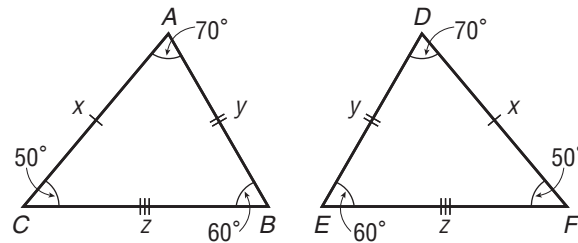
- 28 Solve for g in $5g - 4 = 46$.

- A 7
B 10
C 45
D 250

- 29 A parking garage charges c dollars for parking a car for t hours according to the equation $c = 0.5t + 2$. One solution to this equation is the point $(6.5, 5.25)$. Which of the following statements is TRUE?

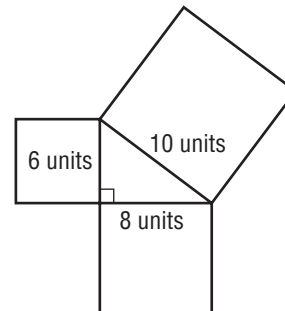
- A The cost of parking is \$2 per hour.
B The cost of parking is \$0.50 plus \$2.00 for each hour parked.
C The cost of parking for 6.5 hours is \$5.25.
D The cost of parking for 5.25 hours is \$6.50.

- 30 Which word BEST describes the two triangles in the figure below?



- A similar
B parallel
C right
D congruent

- 31 What is the area of the largest square in the figure below?



- A 36 units²
B 64 units²
C 100 units²
D 196 units²





Sample Test (continued)

32 The drive from Athens to Macon is no more than 200 miles. Let d be the distance. Which expression represents the driving distance between Athens and Macon?

- A $d \geq 200$
- B $d \leq 200$
- C $d = 200$
- D $d > 200$

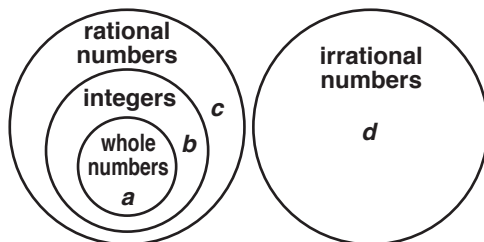
33 Evaluate $\sqrt{169}$.

- A 13
- B 12
- C -13
- D -169

34 Jeremy has a sample of gold that weighs 2.32 grams. There are 7.0×10^{21} atoms of gold in the sample. What is the mass of one atom of gold?

- A 0.23 gram
- B 0.33 gram
- C 3.31×10^{-22} gram
- D 2.32×10^{-23} gram

35 The diagram below shows how subsets of the set of real numbers are related. The letters represent numbers in the sets. Which letter could be replaced with the number 0?



- A a
- B b
- C c
- D d

36 Of the students who apply to the University of Georgia School of Law, about 1 in 5 is accepted. Let x equal the total number of applicants, and let y equal the number accepted. Which of the following linear equations BEST models the situation?

- A $y = 0.2 + x$
- B $y = 5x$
- C $y = -5x$
- D $y = 0.2x$

37 Find a possible value of x so that the table of ordered pairs represents a function.

x	y
0	4
1	0
5	7
2	5
	0

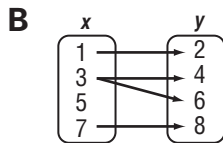
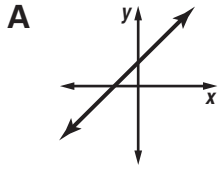
- A 0
- B 1
- C 4
- D 5





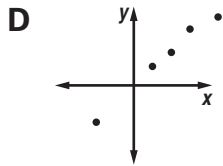
Sample Test (continued)

38 Which of the following does NOT represent a function?

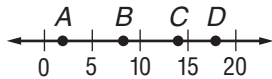


C

x	y
-5	-5
-3	-3
0	0
2	2

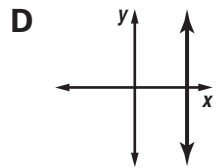
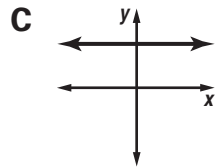
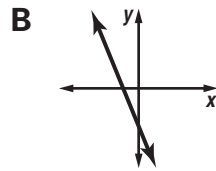
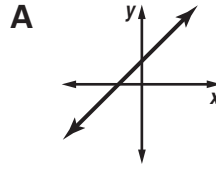


39 Which point BEST represents the location of $\sqrt{202}$ on the number line?



- A** A
B B
C C
D D

40 Which of the following graphs of relations is NOT also a function?



41 For a railroad crossing safety report she presented to the board of education, Beth graphed a railroad track and roadway crossing. The track and the road are perpendicular. If Beth graphed the track as a line represented by the equation $y = -\frac{1}{3}x - 6$, which of the following equations could represent the line of the road?

- A** $y = -\frac{1}{3}x + 6$
B $y = 6x - 3$
C $y = 3x - 1$
D $y = \frac{1}{3}x$





Sample Test (continued)

42 Simplify the expression.

$$a^2 + 2a - 3a^2 + ab + a$$

- A $-2a^2 + 3a + ab$
- B $a^2 + ab + a$
- C $4a + ab$
- D $5ab$

43 Which of the linear inequalities describes the closed half-plane above the right horizontal axis?

- A $x > 0$
- B $x \geq 0$
- C $y > 0$
- D $y \geq 0$

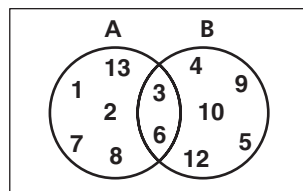
44 Consider the following sequence.

$$45, 51, 57, 63, 69, \dots$$

Val wants to graph the associated linear function. What will be the slope of that line?

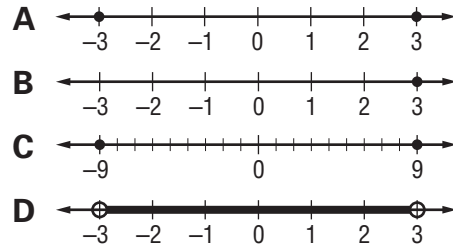
- A 45
- B 12
- C 6
- D 1

45 How many elements are in $A \cap B$ in the Venn diagram below?



- A 2
- B 8
- C 10
- D 12

46 Which number line correctly shows $x = \sqrt{9}$?



47 Simplify the expression.

$$\sqrt{27} + 2\sqrt{3} + \sqrt{9}$$

- A $8\sqrt{3}$
- B $2\sqrt{39}$
- C $5\sqrt{6} + 3$
- D $5\sqrt{3} + 3$

48 Isabelle has \$20 to buy gas for her car. After she pays for the gas, she needs to have at least \$4 left for tolls on the Georgia 400 toll road. Gas costs \$2.50 per gallon.

Solve the inequality to find x , the greatest number of gallons of gas that Isabelle can buy and still have money left for the tolls.

$$20 - 2.50x \geq 4$$

- A $x \leq 6.4$
- B $x \geq 6.4$
- C $x \leq 4$
- D $x \geq 4$





Sample Test (continued)

- 49** Gabe collected the following data regarding the outside temperature x (in degrees Fahrenheit) and the number of freezer pops y sold at the pool. Which of the following phrases **BEST** describes the data?

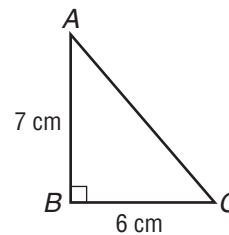
x	70	75	80	85	90	95
y	3	11	19	27	35	43

- A linear function
 B linear relation
 C nonlinear function
 D nonlinear relation
- 50** A certain bacterium measures approximately 0.000023 millimeter in length. How is this length expressed in scientific notation?
- A 2.3×10^5
 B 2.3×10^4
 C 2.3×10^{-4}
 D 2.3×10^{-5}
- 51** Rhode Island's state gas tax is 4 times that of Georgia. Together, the two states tax 37.5 cents per gallon. Which system of equations represents this situation?
- A $g + r = 37.5$
 $g - 4r = 1$
 B $g + r = 37.5$
 $r = 4g$
 C $g + r = 37.5$
 $g = 4r$
 D $g + r = 37.5$
 $g = r + 4$

- 52** Which of the following items states the formula to be used to find the missing number in the chart below?

n	0	1	2	3	4
a	48	24	12	6	

- A Multiply n by 2.
 B Subtract 12 from the previous value of a .
 C Divide the previous value of a by 2.
 D Divide n by 2.
- 53** What is the length of \overline{AC} ?



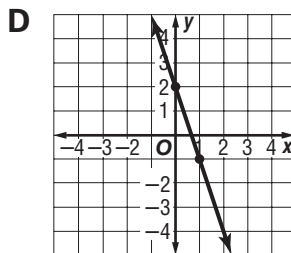
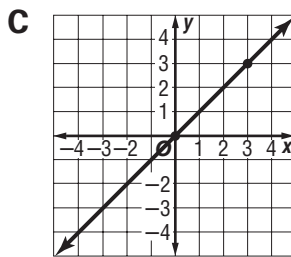
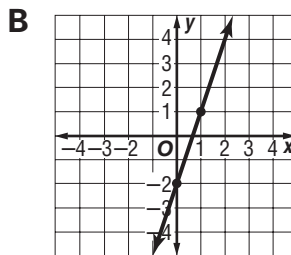
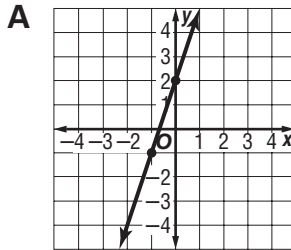
- A $\sqrt{85}$ cm
 B $\sqrt{13}$ cm
 C 8 cm
 D 10 cm
- 54** The perimeter of a rectangular picture frame is 56 inches. The width is 6 inches longer than the length. Solve the system of equations to find the width and height of the frame.
- $$2h + 2w = 56$$
- $$w = h + 6$$
- A width = 17 inches
 height = 11 inches
 B width = 12 inches
 height = 6 inches
 C width = 20 inches
 height = 14 inches
 D width = 10 inches
 height = 4 inches





Sample Test (continued)

55 Which of the following graphs BEST represents $y = -3x + 2$?



56 This graph shows a limitation for the height of a new bridge across a river. Which of the following statements describes the limitation?



- A** The bridge must not be more than 30 feet tall.
- B** The bridge must be less than 30 feet tall.
- C** The bridge must not be less than 30 feet tall.
- D** The bridge must be greater than 30 feet tall.

57 According to the chart, what is the probability that a teacher chosen at random will be male?

Teachers at Kline Middle School		
Age in years	Male	Female
under 25	3	12
25–34	5	7
35–44	8	13
45–54	15	11
55 and over	9	7

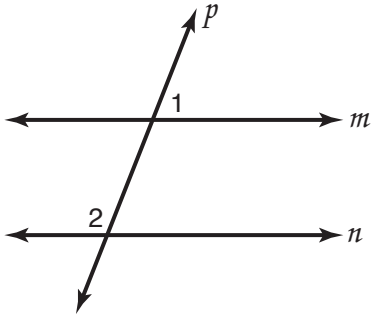
- A** $\frac{1}{3}$
- B** $\frac{4}{9}$
- C** $\frac{1}{2}$
- D** $\frac{6}{11}$





Sample Test (continued)

- 58** In the diagram below, line m and line n are parallel. What is the relationship between $\angle 1$ and $\angle 2$?



- A** complementary
B supplementary
C corresponding
D vertical
- 59** A numbers game allows players to choose a three-digit number. The possibilities for each digit are 0–9. If a player's number matches the randomly drawn number, that player is a winner. How many three-digit number combinations are possible?
- A** 99
B 100
C 999
D 1,000

- 60** Let n represent the position of a number in the following arithmetic sequence.

2, 4, 6, 8, ...

Which expression can be used to find any term in the sequence?

- A** $2n$
B $\frac{1}{2}n$
C $\frac{3}{2}n$
D $n + \frac{1}{2}$





Countdown to CRCT

18 Weeks to CRCT

Monday

1 Clarence bought movie tickets for himself and two friends. The total cost was \$18.75. Which equation can be solved to find the cost of one ticket?

- A $3t = 18.75$
- B $2t = 18.75$
- C $t + 3 = 18.75$
- D $t + 18.75 = 3$

2 When a storm struck, the barometric pressure was 28.56 inches. If the storm caused a 0.42-inch drop in pressure, what was the barometric pressure before the storm?

- A 28.98 in.
- B 28.42 in.
- C 28.14 in.
- D 27.86 in.

Tuesday

3 Simplify $13 + 2(a - 5)$.

- A $2a + 8$
- B $2a + 3$
- C $2a - 5$
- D $2a - 10$

4 The table shows how far an elephant can run in different amounts of time. Which expression shows how far (in feet) an elephant can run in s seconds?

- A $35s$
- B $35 + s$
- C $350 + s$
- D $350s$

Time (s)	Distance (ft)
10	350
20	700
30	1,050
40	1,400
50	1,750

Wednesday

5 A shipping box can hold a maximum of 22 pounds. If the box already contains 15 pounds, what is the maximum weight that can be added to the box?

- A 6 lb
- B 7 lb
- C 8 lb
- D 9 lb

6 Christopher drove 165 miles to visit his grandparents. He drove at an average rate of 55 miles per hour. How long did the trip take?

- A 2 hours
- B 2.5 hours
- C 3 hours
- D 3.5 hours

Thursday

7 Angie had \$565 in her savings account. Then she made a deposit of \$25 and a withdrawal of \$40. How much does Angie have in her savings account now?

- A \$500
- B \$550
- C \$580
- D \$630

Friday

8 Which integer represents a bank withdrawal of \$50?

- A -50
- B -10
- C 25
- D 50



Countdown to CRCT

17 Weeks to CRCT

Monday	Tuesday
<p>1 Alfonso wants to buy a bicycle that costs \$120. He has saved \$55 so far and will save an additional \$10 each week. How many weeks will it be before Alfonso has enough to buy the bike?</p> <p>A 7 B 6 C 5 D 4</p> <p>2 The sum of a number and 6 is -3. What is the number?</p> <p>A 9 B 3 C -3 D -9</p>	<p>3 The state tree of Georgia is the live oak, which can grow to 50 feet. Suppose that one live oak is 39 feet tall, and this is 6 feet shorter than a second tree. How tall is the second tree?</p> <p>A 47 ft B 45 ft C 42 ft D 33 ft</p> <p>4 Suppose that you buy 4 folders that cost x dollars each, a calculator for \$12, and a backpack that costs y dollars. Which expression represents the total cost?</p> <p>A $4x + y + 12$ B $4(x + y) + 12$ C $x + y + 12$ D $x + y + 16$</p>
Wednesday	
<p>5 Ling is 3 years younger than four times her dog's age. If her dog is 4 years old, how old is Ling?</p> <p>A 11 B 12 C 13 D 14</p>	<p>6 Gina's soccer team ran 3 laps around the field below. How far did each player run?</p> <p>A 240 m B 480 m C 640 m D 720 m</p> <div style="text-align: right;"> </div>
Thursday	Friday
<p>7 The dragonfly is the world's fastest insect. Dragonflies can fly up to 52 feet per second. At this rate, how long would it take a dragonfly to travel 234 feet?</p> <p>A 3.5 seconds B 4 seconds C 4.5 seconds D 5 seconds</p>	<p>8 The quotient of a number and -4 is 6. What is the number?</p> <p>A -28 B -24 C 12 D 16</p>



Countdown to CRCT

16 Weeks to CRCT

Monday

1 Which Great Lake has the greatest area?

- A Erie
- B Huron
- C Michigan
- D Superior

Lake	Area (mi ²)
Superior	3.17×10^4
Michigan	2.23×10^4
Erie	9.91×10^3
Ontario	7.34×10^3
Huron	2.30×10^4

2 Which expression is equivalent to $b \cdot b \cdot b \cdot b \cdot b \cdot b \cdot b \cdot b$?

- A b^8
- B b^7
- C $7b$
- D $8b$

Tuesday

3 Simplify $(-2)^5$.

- A -7
- B -10
- C -16
- D -32

4 In 1960, the population of Georgia was about 3.9×10^6 people. By 2000, the population had grown to about 8.2×10^6 . By how much did the population increase?

- A 43,000
- B 430,000
- C 4,300,000
- D 43,000,000

Wednesday

5 There are approximately 3,700,000 housing units in the state of Georgia. How can this number be written in scientific notation?

- A 3.7×10^6
- B 3.7×10^7
- C 37×10^6
- D 37×10^7

6 According to the Richter scale, an earthquake with a score of 3 has a magnitude 10^3 , and an earthquake with a score of 5 has a magnitude of 10^5 . How many times greater is 10^5 than 10^3 ?

- A 10
- B 100
- C 1,000
- D 10,000

Thursday

7 The estimated population of Georgia in 2004 was about 8,830,000 people. How can this number be written in scientific notation?

- A 8.83×10^5
- B 8.83×10^6
- C 8.83×10^7
- D 8.83×10^8

Friday

8 A computer processor rated at 3.2 GHz (gigahertz) is able to perform 3.2×10^9 operations per second. What is another way to express this number?

- A 3,200,000
- B 32,000,000
- C 320,000,000
- D 3,200,000,000



Countdown to CRCT

15 Weeks to CRCT

Monday	Tuesday
<p>1 Simplify $\sqrt{625}$.</p> <p>A 15 B 25 C 35 D 50</p> <p>2 Which point is closest to $\sqrt{7}$?</p> <p>A Point <i>L</i> B Point <i>M</i> C Point <i>N</i> D Point <i>O</i></p>	<p>3 The square below has an area of 81 square feet. What is the perimeter of the square?</p> <p>A 9 ft B 18 ft C 27 ft D 36 ft</p> <p>4 The elevation of Georgia ranges from 0 feet (sea level) to 4,784 feet. In which set of numbers do these two elevations NOT belong?</p> <p>A integers B irrational numbers C rational numbers D whole numbers</p>
Wednesday	
<p>5 Which is the best estimate of $\sqrt{50}$?</p> <p>A 4 B 5 C 6 D 7</p>	<p>6 Simplify $5\sqrt{3} - 2\sqrt{3}$.</p> <p>A $3\sqrt{3}$ B $2\sqrt{3}$ C $\sqrt{3}$ D 3</p>
Thursday	Friday
<p>7 Which statement is true about the areas of the squares <i>A</i>, <i>B</i>, and <i>C</i>?</p> <p>A $A^2 + B^2 = C^2$ B $A^2 + B^2 = C$ C $A + B = C$ D $A - B = C$</p>	<p>8 Marshall had a square patio poured in his backyard. If the area of the patio is 225 square feet, what are the dimensions of the patio?</p> <p>A 15 ft \times 15 ft B 17 ft \times 17 ft C 20 ft \times 20 ft D 25 ft \times 25 ft</p>



Countdown to CRCT

14 Weeks to CRCT

Monday	Tuesday
<p>1 How many eighth graders play soccer but NOT basketball?</p> <p>A 4 B 8 C 11 D 23</p> <div style="display: flex; justify-content: center; align-items: center;"> <div style="margin-right: 20px;"> <p>Soccer</p> </div> </div> <p>2 Georgia covers an area of 153,909 square kilometers. Which term does NOT describe this number?</p> <p>A integer B irrational number C real number D whole number</p>	<p>3 The infield of Turner Field where the Atlanta Braves play baseball is a square with an area of 8,100 square feet. The distance from second base to third base is one of the sides. What is this distance?</p> <p>A 75 ft B 90 ft C 95 ft D 110 ft</p> <p>4 What is the length of the hypotenuse?</p> <p>A 20 cm B 25 cm C 26 cm D 28 cm</p> <div style="text-align: center;"> </div>
Wednesday	
<p>5 Which expression shows eight more than n divided by five?</p> <p>A $n \div (5 + 8)$ B $5 \div n + 8$ C $5 \div (n + 8)$ D $n \div 5 + 8$</p>	<p>6 Suppose that a square garage has an area of 289 square feet. What are the dimensions of the garage?</p> <p>A 15 ft \times 15 ft B 17 ft \times 17 ft C 19 ft \times 19 ft D 21 ft \times 21 ft</p>
Thursday	Friday
<p>7 Which expression is equivalent to $2 \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a \cdot a$?</p> <p>A $2a^{12}$ B a^{12} C a^{20} D $2a^{10}$</p>	<p>8 Half the population of Tifton decreased by 30 is equal to 7,500. Which equation models this situation?</p> <p>A $\frac{1}{2}p + 30 = 7,500$ B $\frac{1}{2}p - 30 = 7,500$ C $\frac{1}{2}p - 7,500 = 30$ D $\frac{1}{2}p + 7,500 = 30$</p>



Countdown to CRCT

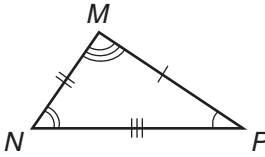
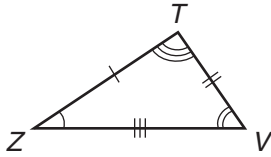
13 Weeks to CRCT

Monday	Tuesday
<p>1 Which number is an irrational number?</p> <p>A $\sqrt{2}$</p> <p>B $\frac{1}{1,000,000,000}$</p> <p>C 0.122333444455555</p> <p>D $0.\overline{6821}$</p> <p>2 Between which two numbers does $\sqrt{40}$ lie on a number line?</p> <p>A 5 and 5</p> <p>B 5 and 6</p> <p>C 6 and 7</p> <p>D 7 and 8</p>	<p>3 A 250-gallon child's swimming pool contained 120 gallons of water when the hose was turned on to fill it the rest of the way. The hose pumps water at a rate of 6 gallons per minute. What would be the slope of the graph that models this situation?</p> <p>A 1</p> <p>B 6</p> <p>C 120</p> <p>D 250</p> <p>4 Simplify $\sqrt{121}$.</p> <p>A -11</p> <p>B -1</p> <p>C 1</p> <p>D 11</p>
Wednesday	
<p>5 During a 6-hour period, the temperature changed at a rate of -3°F per hour. If the temperature was 34°F at the start, what was the temperature at the end of the 6 hours?</p> <p>A 16°F</p> <p>B 20°F</p> <p>C 24°F</p> <p>D 31°F</p>	<p>6 Suppose that you drive along I-20 in Georgia from Atlanta to Augusta at an average rate of 60 miles per hour. If the trip takes 2.5 hours, what is the distance from Atlanta to Augusta?</p> <p>A 24 mi</p> <p>B 120 mi</p> <p>C 140 mi</p> <p>D 150 mi</p>
Thursday	Friday
<p>7 Which expression is equivalent to $\frac{1}{4}$?</p> <p>A 2^1</p> <p>B 2^{-1}</p> <p>C 4^1</p> <p>D 4^{-1}</p>	<p>8 The area of a rectangle is 56 square centimeters. If the length is 8 centimeters, what is the width of the rectangle?</p> <p>A 6 cm</p> <p>B 7 cm</p> <p>C 8 cm</p> <p>D 9 cm</p>



Countdown to CRCT

12 Weeks to CRCT

Monday	Tuesday
<p>1 Suppose that one leg of a right triangle is 30 meters long and the hypotenuse is 34 meters long. What is the length of the other leg?</p> <p>A 11 m B 13 m C 15 m D 16 m</p> <p>2 Which term describes two figures that have the same size and shape?</p> <p>A complementary figures B congruent figures C corresponding figures D similar figures</p>	<p>3 Georgia's population was about 900,000 in 1850. By 1980, the population had grown to about 5,400,000. What was the percentage of increase in population?</p> <p>A 600% B 300% C 150% D 60%</p> <p>4 Tien planted a vegetable garden shaped like a square. If the area of the garden is 900 square feet, what are the dimensions of the garden?</p> <p>A 15 ft × 15 ft B 20 ft × 20 ft C 25 ft × 25 ft D 30 ft × 30 ft</p>
Wednesday	
<p>5 Bonita built a wooden frame shaped like an isosceles right triangle. The legs of the frame are 5 feet long. Which is the best estimate for the length of the hypotenuse?</p> <p>A 5 ft B 6 ft C 7 ft D 8 ft</p>	<p>6 Which term describes two lines that lie in the same plane but never intersect?</p> <p>A exterior lines B parallel lines C perpendicular lines D transversal lines</p>
Thursday	Friday
<p>7 Which congruence statement represents the triangles below?</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>A $\triangle NPM \cong \triangle ZVT$ B $\triangle PNM \cong \triangle TVZ$ C $\triangle MNP \cong \triangle ZVT$ D $\triangle MPN \cong \triangle TZV$</p>	<p>8 In the sixth grade, Craig was 54 inches tall. In the seventh grade, he was 57 inches tall, and now in the eighth grade, he is 61 inches tall. How many inches has Craig grown since sixth grade?</p> <p>A 5 in. B 6 in. C 7 in. D 8 in.</p>



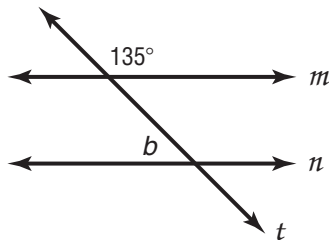
Countdown to CRCT

11 Weeks to CRCT

Monday

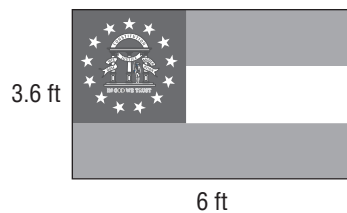
1 If $m \parallel n$, what is the measure of $\angle b$?

- A 45°
- B 75°
- C 90°
- D 135°



2 How much material was needed to make the Georgia state flag below?

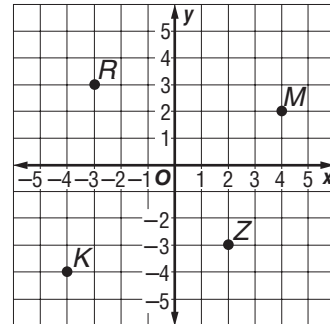
- A 17.5 ft^2
- B 19.2 ft^2
- C 21.6 ft^2
- D 23.4 ft^2



Tuesday

3 Which point has a negative x -coordinate and a positive y -coordinate?

- A Point K
- B Point M
- C Point R
- D Point Z



4 Solve $c + 8 = 5$.

- A -13
- B -3
- C 3
- D 13

Wednesday

5 Which whole number is the best estimate for $\sqrt{45}$?

- A 5
- B 6
- C 7
- D 8

6 Fill in the blank to make a true statement. When two parallel lines are intersected by a transversal, alternate interior angles are _____.

- A adjacent
- B complementary
- C congruent
- D supplementary

Thursday

7 The perimeter of a rectangle is 32 inches. If the width is 4 inches, what is the length of the rectangle?

- A 14 in.
- B 12 in.
- C 10 in.
- D 8 in.

Friday

8 In the 2004 election, Florida had 27 electoral votes. This was 12 more than the number of electoral votes for Georgia. How many electoral votes did the state of Georgia have?

- A 13
- B 14
- C 15
- D 16



Countdown to CRCT

10 Weeks to CRCT

Monday	Tuesday													
<p>1 Which term describes two lines that intersect to form right angles?</p> <p>A parallel lines B perpendicular lines C skew lines D vertical lines</p> <p>2 Suppose that you roll a number cube two times in a board game. What is the probability that you will roll a 3 on the first roll and an even number on the second roll?</p> <p>A $\frac{1}{24}$ B $\frac{1}{12}$ C $\frac{1}{6}$ D $\frac{1}{3}$</p>	<p>3 At a wedding reception, guests can choose from among 2 different entrées, 5 different side dishes, and 3 different desserts. How many different meals are possible?</p> <p>A 10 B 15 C 30 D 40</p> <p>4 A deli offers three types of sandwiches: ham, turkey, and salami. Customers can also choose from three kinds of bread: wheat, white, or rye. How many different sandwiches are possible?</p> <p>A 3 B 6 C 9 D 12</p>													
Wednesday														
<p>5 Lines ℓ, m, and n are parallel. These lines are intersected by transversals t and k. What is the length of segment s?</p> <p>A 8 B 10 C 11 D 12</p>	<p>6 The tree diagram shows all of the possible outcomes when 2 coins are tossed. How many of the outcomes include at least 1 head?</p> <p>A 1 B 2 C 3 D 4</p> <table style="margin-left: 20px;"> <thead> <tr> <th>Coin 1</th> <th>Coin 2</th> <th>Outcome</th> </tr> </thead> <tbody> <tr> <td rowspan="2">H</td> <td>H</td> <td>H, H</td> </tr> <tr> <td>T</td> <td>H, T</td> </tr> <tr> <td rowspan="2">T</td> <td>H</td> <td>T, H</td> </tr> <tr> <td>T</td> <td>T, T</td> </tr> </tbody> </table>	Coin 1	Coin 2	Outcome	H	H	H, H	T	H, T	T	H	T, H	T	T, T
Coin 1	Coin 2	Outcome												
H	H	H, H												
	T	H, T												
T	H	T, H												
	T	T, T												
Thursday	Friday													
<p>7 The first four buses leave a station at 5:45 A.M., 5:55 A.M., 6:05 A.M., and 6:15 A.M. If this pattern continues, what time will the next bus leave?</p> <p>A 6:20 A.M. B 6:25 A.M. C 6:30 A.M. D 6:35 A.M.</p>	<p>8 A golfer hit her first shot 245 yards. If her second shot traveled 152 yards, how far is her ball from its starting point?</p> <p>A 380 yd B 397 yd C 403 yd D 411 yd</p>													



Countdown to CRCT

9 Weeks to CRCT

Monday	Tuesday
<p>1 What is the probability of rolling an even number with a number cube?</p> <p>A $\frac{1}{6}$ B $\frac{1}{3}$</p> <p>C $\frac{1}{2}$ D $\frac{2}{3}$</p> <p>2 Suppose that a cookie jar contains 4 chocolate chip, 8 oatmeal, and 3 peanut butter cookies. If Cornelia selects a cookie at random, what is the probability that it will be a peanut butter cookie?</p> <p>A 0.15</p> <p>B 0.2</p> <p>C 0.25</p> <p>D 0.4</p>	<p>3 The average number of days on which there is precipitation in Atlanta each year is 113. Which is the best estimate for the probability that there will be precipitation on a randomly selected day of the year?</p> <p>A 10% B 20%</p> <p>C 30% D 40%</p> <p>4 Mandy has 22 hits in 88 attempts this softball season. What is the experimental probability that Mandy will get a hit in her next attempt?</p> <p>A $\frac{1}{2}$ B $\frac{1}{3}$</p> <p>C $\frac{3}{10}$ D $\frac{1}{4}$</p>
Wednesday	
<p>5 The normal high temperature in Athens during November is 66°F. Suppose that the temperature reaches 57°F on a November afternoon. How many degrees cooler than normal is this?</p> <p>A 9°F</p> <p>B 11°F</p> <p>C 12°F</p> <p>D 123°F</p>	<p>6 Juanita scored 8 points in a basketball game. This was 4 points fewer than twice the number of points scored by Karen. How many points did Karen score?</p> <p>A 5</p> <p>B 6</p> <p>C 7</p> <p>D 8</p>
Thursday	Friday
<p>7 What is 4.206×10^5 written in standard form?</p> <p>A 4,206</p> <p>B 42,060</p> <p>C 420,600</p> <p>D 4,206,000</p>	<p>8 Between which two numbers does $\sqrt{78}$ lie on a number line?</p> <p>A 8 and 9</p> <p>B 9 and 10</p> <p>C 10 and 11</p> <p>D 11 and 12</p>



Countdown to CRCT

8 Weeks to CRCT

Monday	Tuesday
<p>1 Simplify $5a - 3(a - 2)$.</p> <p>A $2a - 5$ B $2a + 6$ C $3a + 5$ D $3a - 3$</p> <p>2 Solve $x + \frac{1}{3}y = 6$ for y.</p> <p>A $y = -3x + 18$ B $y = -3x + 2$ C $y = 3x + 18$ D $y = 3x - 2$</p>	<p>3 Which set of numbers is represented below?</p> <p style="text-align: center;">$\{n \mid n = 0, 1, 2, 3, 4, \dots\}$</p> <p>A digits B integers C rational numbers D whole numbers</p> <p>4 What is the square root of 0?</p> <p>A -1 B 0 C 1 D 10</p>
Wednesday	
<p>5 Solve $8y - 9 \geq 15$.</p> <p>A $y \leq -4$ B $y \geq -4$ C $y \leq 3$ D $y \geq 3$</p>	<p>6 Evaluate $4[3 + (5 - 2) \div 3]$.</p> <p>A 7 B 12 C 16 D 20</p>
Thursday	Friday
<p>7 Which ordered pair does NOT belong in the relation shown on the graph?</p> <p>A $(2, 5)$ B $(4, 7)$ C $(5, 6)$ D $(6, 1)$</p> <div style="text-align: center;"> </div>	<p>8 Solve $-4p + 7 < 35$.</p> <p>A $p < -7$ B $p < 5$ C $p > 5$ D $p > -7$</p>



Countdown to CRCT

7 Weeks to CRCT

Monday

1 The highest point in Georgia is Brasstown Bald, at an elevation of 1,458 meters. Which inequality represents the elevations (in meters) of different parts of Georgia?

- A $e < 1,458$
- B $e \leq 1,458$
- C $e > 1,458$
- D $e \geq 1,458$

2 Larry earns \$7.25 per hour. Yesterday his total earnings were less than \$100. Which inequality models this situation?

- A $h + 7.25 \leq 100$
- B $7.25h > 100$
- C $7.25h < 100$
- D $7.25h \leq 100$

Tuesday

3 A health club charges membership fees of \$50 the first month, plus \$35 for each additional month. How much would it cost to join the health club for a year?

- A \$365
- B \$400
- C \$435
- D \$470

Month	Cost
1	\$50
2	\$85
3	\$120
4	\$155
5	\$190

4 Simplify $-4(x + 2) + 4x + 5$.

- A $2x + 8$
- B $-2x - 3$
- C $-x + 2$
- D -3

Wednesday

5 Which value can be substituted for m so that the table represents a function?

- A -8
- B -5
- C 1
- D 6

a	b
m	3
-5	5
-2	-1
0	0
1	8
4	4
6	2

6 There are 8 fewer apples than twice the number of oranges in a produce display. If there are 44 apples, how many oranges are in the display?

- A 18
- B 22
- C 26
- D 28

Thursday

7 Which value is a solution of $3(g - 1) \leq 21$?

- A 11
- B 10
- C 9
- D 8

Friday

8 Simplify $12x - \frac{1}{4}(8x - 4) + 3$.

- A $8x + 7$
- B $8x - 1$
- C $10x - 1$
- D $10x + 4$



Countdown to CRCT

6 Weeks to CRCT

Monday

1 The maximum speed you can drive on I-75 through Georgia is 70 miles per hour. Which inequality represents this situation?

- A** $s < 70$
- B** $s > 70$
- C** $s \geq 70$
- D** $s \leq 70$

2 Solve $x - 4 < 9$.

- A** $x < 36$
- B** $x < 13$
- C** $x < 5$
- D** $x > -5$

Tuesday

3 Carlos needs to score **AT LEAST** 82 points on his final science test to earn a B for the year. Which inequality represents this situation?

- A** $p > 82$
- B** $p < 82$
- C** $p \geq 82$
- D** $p \leq 82$

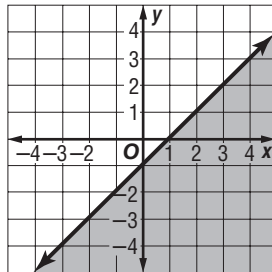
4 Solve $-3x + 5 \geq 17$.

- A** $x \leq -4$
- B** $x \geq -4$
- C** $x \leq -3$
- D** $x \geq -5$

Wednesday

5 Which inequality has the solution shown below?

- A** $y < x - 1$
- B** $y \leq x - 1$
- C** $y > x - 1$
- D** $y < x + 1$



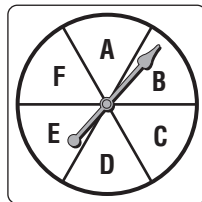
6 The eighth graders have collected 83 canned goods so far in a food drive. Their goal is to collect **MORE THAN** 125 cans altogether. What is the least number of cans they still need to collect to meet this goal?

- A** 41
- B** 42
- C** 43
- D** 44

Thursday

7 What is the probability of spinning a consonant?

- A** $\frac{3}{4}$
- B** $\frac{2}{3}$
- C** $\frac{1}{3}$
- D** $\frac{1}{6}$



Friday

8 Which value is **NOT** a solution to $5b - 3 > 12$?

- A** 3
- B** 4
- C** 5
- D** 6



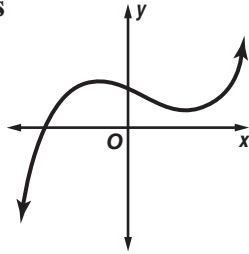
Countdown to CRCT

5 Weeks to CRCT

Monday

1 Which term describes the function shown in the graph shown?

- A constant
- B linear
- C nonlinear
- D straight



2 The population of Ware County is about 36,000. Of these residents, about 9,000 are age 18 or younger. Suppose that you select a Ware County resident at random. What is the probability that he or she will be OLDER than 18?

- A 25%
- B 50%
- C 60%
- D 75%

Tuesday

3 The table shows the number of people at a bus stop at different times of the morning. Which type of function could be used to model the data?

- A cubic
- B exponential
- C linear
- D quadratic

Time	People
6:15	8
6:30	10
6:45	12
7:00	14
7:15	16

4 If three coins are tossed, what is the probability of getting two tails and one head? Use a tree diagram to help you list all of the possible outcomes.

- A $\frac{3}{8}$
- B $\frac{1}{2}$
- C $\frac{5}{8}$
- D $\frac{3}{4}$

Wednesday

5 Which function rule describes the arithmetic sequence?

1, 3, 5, 7, 9, ...

- A $f(x) = 2x + 5$
- B $f(x) = 2x - 1$
- C $f(x) = 3x + 1$
- D $f(x) = 4x - 2$

6 Between which two numbers does $\sqrt{140}$ lie on a number line?

- A 8 and 9
- B 9 and 10
- C 10 and 11
- D 11 and 12

Thursday

7 Which set of numbers is represented below?

$\{n \mid n = \dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

- A digits
- B integers
- C rational numbers
- D whole numbers

Friday

8 Simplify $\sqrt{225}$.

- A 15
- B 17
- C 19
- D 25



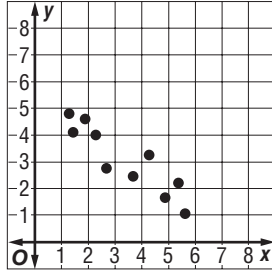
Countdown to CRCT

4 Weeks to CRCT

Monday

1 Which line of best fit matches the data in the scatter plot most accurately?

- A $y = -x + 4$
- B $y = -x + 6$
- C $y = x - 1$
- D $y = x + 5$



2 What type of function does the equation $y = 14(x - 2)$ represent?

- A cubic
- B linear
- C nonlinear
- D quadratic

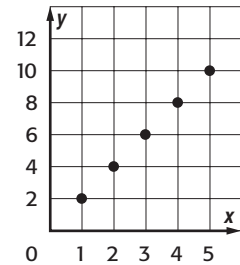
Tuesday

3 Which expression is equivalent to $\frac{1}{9}$?

- A 3^{-2}
- B 3^{-1}
- C 6^{-1}
- D 3^2

4 What is the constant difference of the arithmetic sequence shown on the graph?

- A $\frac{1}{2}$
- B 1
- C 2
- D 4



Wednesday

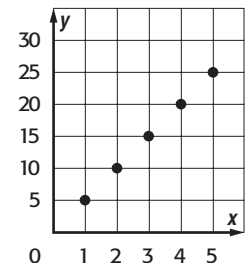
5 Which function rule describes the arithmetic sequence?

2, 7, 12, 17, 22, ...

- A $f(x) = 3x - 1$
- B $f(x) = 4x - 2$
- C $f(x) = 4x + 1$
- D $f(x) = 5x - 3$

6 What is the constant difference of the arithmetic sequence shown on the graph?

- A $\frac{1}{5}$
- B $\frac{1}{2}$
- C 2
- D 5



Thursday

7 The product of a number and 5 is -45 . What is the number?

- A -9
- B -7
- C -6
- D -5

Friday

8 What is the domain of the relation?

$\{(1, 3), (2, 5), (3, 8)\}$

- A $\{1, 2, 3\}$
- B $\{3, 5, 8\}$
- C $\{1, 3, 5\}$
- D $\{1, 2, 3, 5, 8\}$



Countdown to CRCT

3 Weeks to CRCT

Monday	Tuesday
<p>1 What is the solution of the system of equations?</p> $y = 3x - 2$ $y = -4x + 5$ <p>A (3, 2) B (2, 6) C (4, 1) D (1, 1)</p> <p>2 The function $y = 80 - 7.5m$ gives the amount of water in a bathtub m minutes after the drain plug is pulled. What is the meaning of the y-intercept?</p> <p>A the temperature of the water B the time it takes to drain the tub C the amount of water in the tub initially D the time it takes to fill the tub</p>	<p>3 If Pamela joins a camera club for \$30 per year, each roll of film will cost \$3 to develop. If she doesn't join the club, then developing will cost \$5 per roll. Write and solve a system of equations to determine how many rolls Pamela must develop for the two plans to have the same cost.</p> <p>A 12 B 15 C 20 D 25</p> <p>4 The equation $y = 0.5x - 40$ gives the amount of money, y, earned at a bake sale for selling x cookies. How much money will be earned if 200 cookies are sold?</p> <p>A \$45 B \$50 C \$60 D \$75</p>
Wednesday	
<p>5 Georgia has six state forests that cover a total of 63,294 acres. What is the average number of acres in each forest?</p> <p>A 7,346 B 9,129 C 10,549 D 11,216</p>	<p>6 The perimeter of a rectangle is 60 yards. If the width y is 12 yards, which system of equations can be used to find the length?</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>A $y = 12$ $x + y = 60$</p> <p>B $y = 12$ $2x + 2y = 60$</p> <p>C $x = 12$ $x + y = 60$</p> <p>D $x = 12$ $2x + 2y = 60$</p> </div> <div style="border: 1px solid black; padding: 10px;"> </div> </div>
Thursday	Friday
<p>7 What is the slope of the graph of $5x + 5y = 10$?</p> <p>A -5 B -1 C 1 D 5</p>	<p>8 Which relation represents a function?</p> <p>A $\{(0, 0), (1, 1), (2, 2), (3, 3)\}$ B $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$ C $\{(4, 5), (6, 7), (8, 9), (8, 10)\}$ D $\{(0, 0), (2, 5), (0, 8), (5, 2)\}$</p>



Countdown to CRCT

2 Weeks to CRCT

Monday

- 1 Which value can be substituted for c so that the table represents a function?

x	y
-9	8
-7	15
-3	4
c	3
1	-6
5	-5
9	-7

- A -7
B -1
C 5
D 9

- 2 What is the slope of the graph of $6x - 3y = 12$?

- A 2
B 3
C 6
D 12

Tuesday

- 3 Which relation does NOT represent a function?

- A $\{(1, 2), (2, 3), (3, 4), (4, 5)\}$
B $\{(1, 1), (2, 1), (3, 1), (4, 1)\}$
C $\{(1, 5), (1, 6), (2, 9), (2, 10)\}$
D $\{(0, 0), (2, 2), (4, 4), (6, 6)\}$

- 4 On average, Columbus receives no more than 51 inches of precipitation each year. Which inequality represents this situation?

- A $p > 51$
B $p \geq 51$
C $p < 51$
D $p \leq 51$

Wednesday

- 5 What is the y -intercept of the graph of $y = -4x + 10$?

- A -10
B -4
C 4
D 10

- 6 What is the equation of the line that passes through the origin and has a slope of -1 ?

- A $y = -x$ B $y = x$
C $y = x - 1$ D $y = x + 1$

Thursday

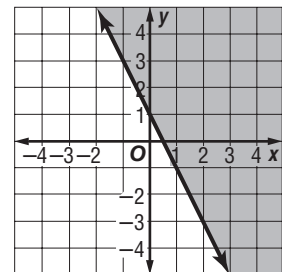
- 7 A hot air balloon begins at an elevation of 85 feet and climbs at a rate of 50 feet per minute. What would be the slope of the graph that models this situation?

- A 1
B 50
C 85
D 100

Friday

- 8 Which inequality has the solution shown below?

- A $y > 2x + 1$
B $y \geq -2x - 1$
C $y > -2x + 1$
D $y \geq -2x + 1$



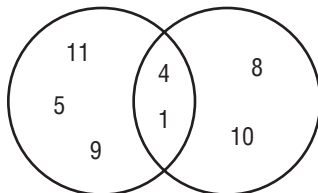


Countdown to CRCT

1 Week to CRCT

Monday

1 What is the union of the sets shown in the Venn diagram?



- A {1, 4}
 B {1, 4, 5, 9, 11}
 C {1, 4, 8, 10}
 D {1, 4, 5, 8, 9, 10, 11}

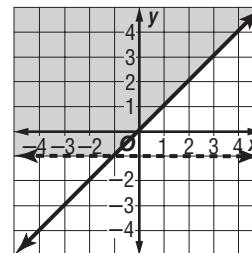
2 Simplify $4(2z - 3)$.

- A $6z - 3$
 B $6z - 7$
 C $8z - 12$
 D $8z - 3$

Tuesday

3 Which system of linear inequalities is represented by the graph below?

- A $y > -1$ $y \geq x$
 B $y < -1$ $y \geq x$
 C $y > -1$ $y \leq x$
 D $y < -1$ $y \leq x$



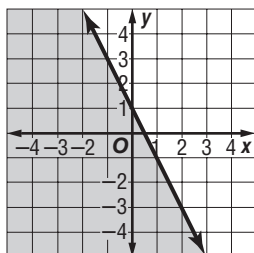
4 Simplify $\frac{8m^4n^2p}{4mnp}$.

- A $2m^3np$
 B $2m^2n$
 C $2m^3n$
 D $8m^3np$

Wednesday

5 The graph shown below represents which linear inequality?

- A $y < -2x + 1$
 B $y \leq -2x + 1$
 C $y \geq -2x + 1$
 D $y < -2x + 1$



6 What is the intersection of Sets A and B?

$$A = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

$$B = \{0, 2, 4, 6, 8, 10\}$$

- A {2, 4, 6, 8}
 B {1, 3, 5, 7}
 C {0, 1, 2, 3, 4, 5, 6, 7, 8}
 D {0, 1, 2, 3, 4, 5, 6, 7, 8, 10}

Thursday

7 Simplify $\frac{10p^4}{5p^{-2}}$.

- A $2p^6$
 B $2p^2$
 C $50p^6$
 D $50p^2$

Friday

8 Which expression can be used to find the n th term of the sequence?

$$6, 9, 12, 15, 18, \dots$$

- A $3n + 1$ B $3(n + 1)$
 C $5n - 2$ D $4n + 3$



Road Map to CRCT Success

- 1 Diagnose** strengths and weaknesses by taking the Diagnostic Test.
- 2 Prescribe** a plan for improvement by using the Recording Chart to see where additional practice is needed.
- 3 Practice** test-taking skills by using the practice pages and Sample Test.

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