

## The Rational Number System Worksheet

Classify these numbers as rational or irrational and give your reason.

1.    a. 7329  
      b.  $\sqrt{4}$
2.    a. 0.95832758941...  
      b. 0.5287593593593

Give an example of a number that would satisfy these rules.

3. a number that is: real, rational, whole, an integer, and natural
4. a number that is: real and irrational
5. a number that is: real, rational, an integer

Classify each number as: real, rational, irrational, whole, natural, and integer. Give your reason.

6.    a.  $\frac{3}{4}$   
      b.  $-\frac{12}{4}$
7.    a. 0.345 345 345  
      b. -0. 6473490424

8. Give examples of rational numbers that fit between the following sets of numbers.

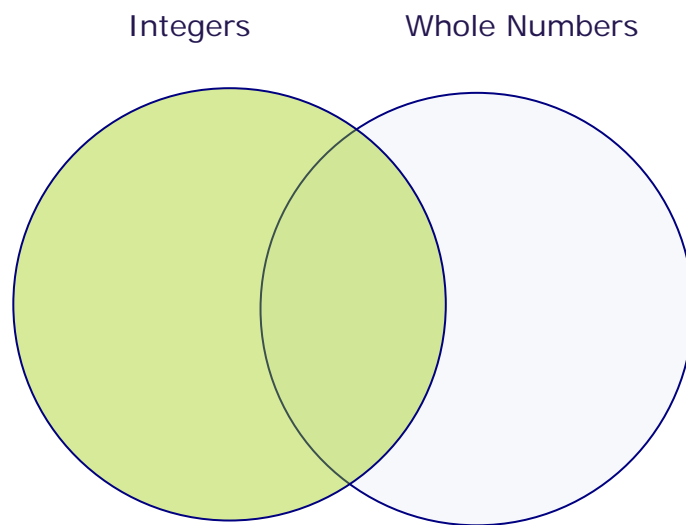
- a. -0.56 and -0.65
- b. -5.76 and -5.77
- c. 3.64 and 3.46

9. Which two numbers are irrational? How do you know?

- a.  $8 - \sqrt{56}$
- b.  $8 - \sqrt{25}$
- c.  $2 - \sqrt{73}$

10. Place the following numbers in the Venn Diagram. Place the following numbers in the Venn Diagram. Note that some numbers may not fit in the diagram.

-0.462	-56	735	0.326	8321	0
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## The Rational Number System

### Worksheet Solutions

Classify these numbers as rational or irrational and give your reason.

- 7329 - **rational because this number is a natural, whole, integer**
  - $\sqrt{4}$  - **rational because in standard form this number is 2 which is a natural, whole, integer**
- 0.95832758941... - **irrational because the decimal does not repeat or terminate**
  - 0.5287593593593 - **rational because the decimal eventually repeats**

Give an example of a number that would satisfy these rules.

- a number that is: real, rational, whole, an integer, and natural

**Answers will vary but could include any counting number: 1,2,3, etc.**

- a number that is: real and irrational

**Answers will vary but could include any number that has an infinite decimal.**

- a number that is: real, rational, an integer

**Answers will vary but could include 0 or a negative number.**

Classify each number as: real, rational, irrational, whole, natural, and integer. Give your reason.

6. a.  $\frac{3}{4}$  - **real and rational because this number is 0.75 when written in standard form.**

b.  $-\frac{12}{4}$  - **real, rational, and integer because this is -3 when written in standard form.**

7. a. 0.345 345 345 – **real and rational because this is a repeating decimal.**

b. -0.6473490424 - **real and irrational because this is an infinite decimal.**

8. Give examples of rational numbers that fit between the following sets of numbers.

a. -0.56 and -0.65 - **Answers will vary but could include: -0.57 to -0.64 and numbers in between.**

b. -5.76 and -5.77 - **Answers will vary but could include -5.761 to -5.769 and numbers in between.**

c. 3.64 and 3.46 - **Answers will vary but could include 3.461 to 3.462 and numbers in between.**

9. Which two numbers are irrational? How do you know?

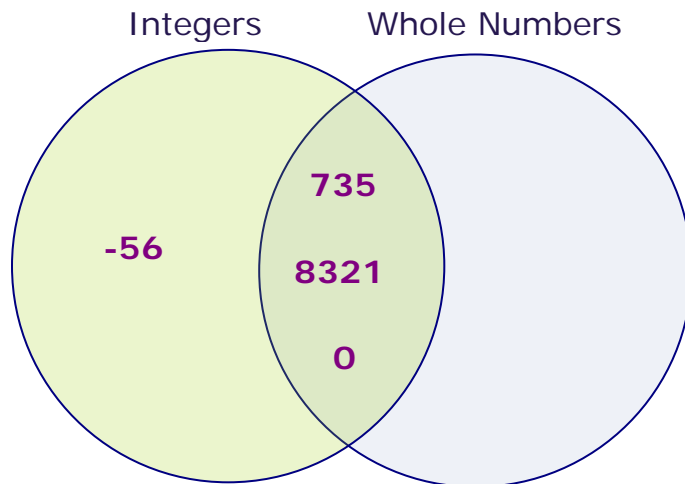
a.  $8-\sqrt{56}$  - **This number is irrational because the decimal, 0.516685226, is infinite.**

b.  $8-\sqrt{25}$  - **This number is rational because it equals 3 when expressed in standard form.**

c.  $2-\sqrt{73}$  - **This number is irrational because the decimal, - 6.544003745..., is infinite.**

10. Place the following numbers in the Venn Diagram. Note that some numbers may not fit in the diagram.

-0.462	-56	735	0.326	8321	0
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**0.326** These numbers  
are neither  
**-0.462** integers nor  
whole numbers