

Warm-Up ~ Simplify

1. $(-6)^2$

2. -6^2

3. -10^2

4. $(-10)^2$

5. $(2 \cdot 3)^2 - 5 + 3 \cdot 2^2$

6. 1^1

9. 10^{-5}

7. 8^0

10. 9^{-2}

8. 9^{-1}

11. 3^3



MULTIPLYING AND DIVIDING EXPONENTS

<http://www.brainpop.com/math/algebra/multiplyinganddividingexponents/preview.weml>



	Rule	Example
1	$x^1 = x$	$5^1 = 5$
2	$x^0 = 1$	$5^0 = 1$
3	$x^{-1} = \frac{1}{x^1}$	$5^{-1} = \frac{1}{5}$

	Rule	Example
4	$(x^m)(x^n) = x^{m+n}$	$(2^3)(2^2) = 2^{3+2} = 2^5$
5	$\frac{x^m}{x^n} = x^{m-n}$	$\frac{2^8}{2^5} = 2^{8-5} = 2^3$
6	$(x^m)^n = x^{(m)(n)}$	$(2^3)^4 = 2^{3 \cdot 4} = 2^{12}$

— **Rule 4:** $(x^m)(x^n) = x^{m+n}$ —

$$(2^4)(2^3) = (2 \cdot 2 \cdot 2 \cdot 2)(2 \cdot 2 \cdot 2)$$

$$(3^2)(3^4)$$

$$(4^5)(4^2)$$

— Rule 5: $\frac{x^m}{x^n} = x^{m-n}$ —

$$\frac{3^4}{3^2} = 3^{4-2} =$$

$$\frac{4^2}{4^5} =$$

$$\frac{4^2}{4^{-5}} =$$

— **Rule 6:** $(x^m)^n = x^{(m)(n)}$ —

$$(2^2)^3 = (2^2)(2^2)(2^2) =$$

$$(3^4)^2$$

$$(5^2)^3$$

$$(2^3)^{-1}$$

$$1. 4^{-2} =$$

$$2. (8^2)^2 =$$

$$3. 3^2 \cdot 3^4 =$$

$$4. (-3)^{-3} =$$

$$5. (2^5)^2 =$$

$$6. (-6)^4 \cdot (-6)$$

$$7. (-22)^0 =$$

$$8. \frac{10^9}{10^2} =$$

$$9. \frac{(-4)^6}{(-4)^3} =$$

$$10. (3^2)^{-3} =$$

$$11. 7^5 \cdot 7^2 =$$

$$12. \frac{15^6}{15^2} =$$

ABC Book

Page 2 (1-12), (13-27 odd),
(28, 30, 33, 34, 35)

Page 5 (1, 13)

Page 9 (1-3, 9, 14)

Pg. 3 ~ (1.2)

(1, 2, 4, 8, 9)

Pg. 3 ~ (1.3)

(1, 2, 3, 5, 9)

Pg. 6

(1, 2, 3, 5, 7, 11, 18, 24)

ABC Book

Page 2 (1-12), (13-27 odd),
(28, 30, 33, 34, 35)

- | | | | |
|------------|---------------|----------|--------------------|
| 1. 12^5 | 9. 52^3 | | |
| 2. 111^3 | 10. $5,687^3$ | | |
| 3. 42^4 | 11. 45^2 | 19. 576 | 28. 5^2 |
| 4. 2^2 | 12. 8^8 | 21. 27 | 30. 12^2 |
| 5. 7^7 | | 23. 36 | 33. 2^3 |
| 6. 33^3 | 13. -8 | 25. -125 | 34. 9^2 or 3^4 |
| 7. 14^4 | 15. 100 | 27. 512 | 35. 3^3 |
| 8. 1^6 | 17. 1 | | |

Page 5 (1, 13)

- | | |
|--------------------|---------------------|
| 1. $\frac{1}{p^3}$ | 13. $\frac{1}{r^2}$ |
|--------------------|---------------------|

Page 9 (1-3, 9,14)

1. $\frac{1}{4}$
2. 7
3. $-\frac{3}{14}$
9. $-\frac{1}{11}$
14. $-\frac{1}{5}$

ABC Book

answers

Pg. 3 ~ (1.2)

(1, 2, 4, 8, 9)

Pg. 3 ~ (1.3)

(1, 2, 3, 5, 9)

Pg. 6

(1, 2, 3, 5, 7, 11, 18, 24)

Pg. 3 ~ (1.2)

1. x^9

2. 8^7

4. 3^9

8. 7^4

9. 4^7

Pg. 3 ~ (1.3)

1. 8^6

2. 3^{12}

3. y^{15}

5. x^4

9. 4^9

Pg. 6

1. 16

2. y

3. 125

5. 343

7. $1/64$

11. $1/y^{10}$

18. 25

24. 100,000