

Name: KEY

Chapter 2 Review

Show all of your work.

1. Write as repeated multiplication, then in standard form.

a. $4^3 = 4 \times 4 \times 4 = 64$

b. $7^2 = 7 \times 7 = 49$

c. $-(-2)^5 = -1 \times (-2)(-2)(-2)(-2)(-2) = +32$

2. Write as a power, then in standard form.

a. $3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^6 = 729$

b. $(-8)(-8)(-8) = (-8)^3 = -512$

c. $-(2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2) = -(2)^7 = -128$

3. Explain the difference between 5^8 and 8^5 .

$5^8 = 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5$

$8^5 = 8 \times 8 \times 8 \times 8 \times 8$

4. Is the value of -4^2 different from the value of $(-4)^2$? And is the value of -4^3 different from the value of $(-4)^3$?

$-4^2 = -1 \times 4^2 = -16$

$(-4)^2 = (-4)(-4) = +16$

$-4^3 = -1 \times 4 \times 4 \times 4 = -64$

$(-4)^3 = -4 \times -4 \times -4 = -64$

 \Rightarrow same value for different reasons!

5. Write each number in standard form.

a. $(4 \times 10^3) + (7 \times 10^2) + (2 \times 10^1) + (9 \times 10^0) = 4,729$

b. $(3 \times 10^5) + (2 \times 10^2) + (8 \times 10^0) = 300,208$

6. Evaluate:

a. $2^3 + (5 - 2)^4 = 8 + 3^4 = 89$

b. $100 \div 2 + (4 + 1)^3 = 50 + 5^3 = 175$

c. $(6^2 + 7^2)^0 - (8^4 + 2^4)^0 = 1 - 1 = 0$

7. Identify then correct any errors in the student work below.

$$(-2)^2 \times 2^3 - 3^2 \div (-3) + (-4)^2$$

$$= (-2)^5 - 9 \div (-3) + 16 \rightarrow (-2)^2 \cdot 2^3 \neq (-2)^5 \text{ Bases are not same}$$

$$= -32 - 3 + 16$$

$$= -35 + 16$$

$$= -19$$

$$\begin{aligned} \text{Correct Sol}^n : & 4 \times 8 - 9 \div -3 + 16 \\ & = 32 - (-3) + 16 \\ & = 35 + 16 \\ & = 51 \end{aligned}$$

8. Write each quotient as a power, then evaluate the power.

$$a. 7^5 \div 7^3 = 7^2 = 49$$

$$b. (-10)^9 \div (-10)^3 = (-10)^6 = 1,000,000$$

$$c. \frac{8^4}{8^2} = 8^2 = 64$$

9. Write each expression as a product or quotient of powers, then evaluate it.

$$a. (3 \times 5)^3 = 3^3 \times 5^3 = 3375$$

$$b. (12 \div 3)^5 = 12^5 \div 3^5 = 1024$$

$$c. [(-4) \times 2]^4 = (-4)^4 \times 2^4 = 4096$$

10. Write each expression as a power.

$$a. (3^2)^3 = 3^6$$

$$b. (4^0)^6 = 1^6$$

$$c. [(-2)^3]^3 = (-2)^9$$

$$c. [(-2)^3]^3 = (-2)^9$$

11. Write each expression as a power, then evaluate.

$$a. \frac{5^5}{5^3 \times 5^2} = \frac{5^5}{5^5} = 5^0 = 1$$

$$b. \frac{(-4)^3 \times (-4)^6}{(-4)^2 \times (-4)^4} = \frac{(-4)^9}{(-4)^6} = (-4)^3 = -64$$

$$c. \frac{10^6 \times 10^0}{10^3 \times 10^2} = \frac{10^6}{10^5} = 10^1 = 10$$

12. Simplify, then evaluate each expression.

$$a. 2^3 \times 2^2 - 2^0 + 2^4 \div 2^3 = 2^5 - 1 + 2^1 = 32 - 1 + 2 = 33$$

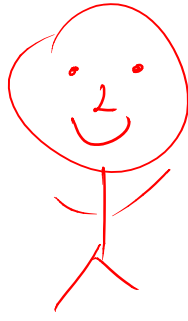
$$b. \frac{(-2)^3 \times (-2)^2}{(-2)^3 - (-2)^2} = \frac{(-2)^5}{-8 - 4} = \frac{-32}{-12} = \frac{8}{3}$$

$$c. 12^2 \times 12^4 \div (-2)^4 - 12^0 = 12^6 \div 16 - 1$$

$$= 2985984 \div 16 - 1$$

$$= 186624 - 1$$

$$= 186623$$



Yaaay for math!!!

