

Chapter 3 Review

Key Words

For #1 to #5, use the clues to unscramble the letters.

1. TFNFEIICCOI
a number that multiplies the power _____ F _____
2. NNTOEIPAXLE MORF
the form for writing a number so that it is made up of a base and an exponent (2 words)

3. EASB
the number in a power that is multiplied by itself repeatedly _____
4. WROEP
an expression made up of a base and an exponent _____
5. TOXENPNE
the number in a power that indicates how many times to multiply the base by itself

3.1 Using Exponents to Describe Numbers, pages 120–127

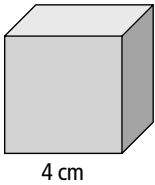
6. Write as a power.
 - a) $2 \times 2 \times 2 = 2 \square$
 - b) $(-3) \times (-3) \times (-3) \times (-3) = \underline{\hspace{2cm}}$
7. Write as repeated multiplication.
 - a) $4^6 = \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \times \underline{\hspace{1cm}}$
 - b) $6^4 = \underline{\hspace{4cm}}$
 - c) $(-5)^7 = \underline{\hspace{4cm}}$
 - d) $-5^7 = \underline{\hspace{4cm}}$
8. A cube has an edge length of 4 cm.
Write its volume in repeated multiplication form and in exponential form.
Then, evaluate.

$V = s^3$

$V = \underline{\hspace{2cm}}$ Repeated multiplication form.

$= \underline{\hspace{2cm}}$ Exponential form.

$= \underline{\hspace{2cm}}$ Evaluate.



4 cm

9. Arrange the numbers in ascending order (least to greatest).

$4^3 \quad 7^2 \quad -3^4 \quad 9 \quad 2^5$

Evaluate each power.

3.2 Exponent Laws, pages 129–140

10. Write each expression in parenthesis as a single power.
Then, write the entire expression as a single power.

a) $(3 \times 3 \times 3) \times (3 \times 3)$
 $= 3^{\square} \times 3^{\square}$
 $= 3^{\square}$

b) $\frac{(4 \times 4) \times (4 \times 4 \times 4 \times 4)}{(4 \times 4 \times 4)}$

11. Write as repeated multiplication. Then, write as a single power.

a) $(-5)^2 \times (-5)^5$

b) $(3^2)^4$

← Repeated multiplication →

← Single power →

12. Write as the multiplication of two powers.

a) $(6 \times 4)^3 = 6^{\square} \times 4^{\square}$

b) $[7 \times (-2)]^5 = \underline{\hspace{2cm}}$

13. Write as the division of two powers.

a) $\left(\frac{4}{5}\right)^2 = \frac{4^{\square}}{5^{\square}}$

b) $\left(\frac{2}{7}\right)^4$

14. Evaluate.

a) -4^2

b) $(-10)^0$

c) $3^2 \times 3^2$

d) $2^5 \div 2^3$

3.3 Order of Operations, pages 142–148

15. Write the calculator key sequence to evaluate each expression.

a) $(-2)^2 + (-2)^3$

b) $(2^3)^2 - 4 \times 6^0$

16. Evaluate.

a) $7^2 - (-2)^3 \div (-2)^2$

b) $(2 - 5)^3 + 6^2$

Exponents.

Brackets.

Divide.

Exponents.

Subtract (add the opposite).

Add.

17. a) Circle the mistake in Ang's work.

$$\begin{aligned} & (-3)^4 + 7 \times 2^3 \\ & = 81 + 7 \times 8 \\ & = 88 \times 8 \\ & = 704 \end{aligned}$$

b) Find the correct answer.

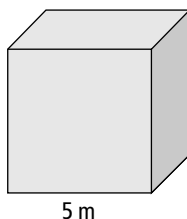
3.4 Using Exponents to Solve Problems, pages 150–157

18. What is the surface area of the cube?

Formula →

Substitute →

Evaluate →



Sentence: _____

19. To calculate the distance an object falls, use the formula $d = 4.9t^2$. The distance, d , is measured in metres, and time, t , in seconds. A pebble breaks loose from the cliff.

- a) How far would it fall in 1 s?

Formula →

Substitute →

Evaluate →



Sentence: _____

- b) How far would it fall in 4 s?

Formula →

Substitute →

Evaluate →

Sentence: _____