

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**Multiply.**

1)  $(-4y)(-9y^9)$

A)  $-13y^9$

B)  $36y^{10}$

C)  $4y - 9y^9$

D)  $-36y^{10}$

2)  $(-5p^2r)(5p^2qr^5)(-3q^5r^2)$

A)  $-75p^3q^7r^8$

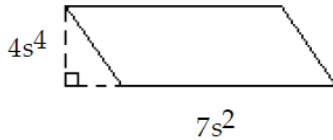
B)  $75p^4q^6r^8$

C)  $-75p^4q^6r^8$

D)  $75p^3q^7r^8$

**Solve the problem.**

3) Write an expression in simplest form for the area of the shape.



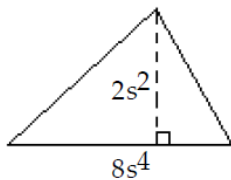
A)  $14s^8$

B)  $28s^6$

C)  $28s^8$

D)  $14s^6$

4) Write an expression in simplest form for the area of the shape.



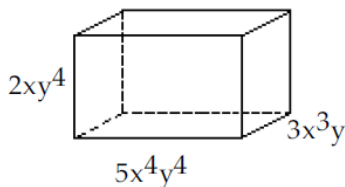
A)  $16s^8$

B)  $8s^8$

C)  $16s^6$

D)  $8s^6$

5) Write an expression in simplest form for volume.



A)  $30x^{24}y^{27}$

B)  $30x^{12}y^{48}$

C)  $30x^8y^9$

D)  $90x^7y^5$

**Multiply and write the answer in scientific notation.**

6)  $(2.6 \times 10^{-5})(1.8 \times 10^{-9})$

A)  $4.68 \times 10^{14}$

B)  $4.68 \times 10^{-4}$

C)  $4.4 \times 10^{14}$

D)  $4.68 \times 10^{-14}$

**Simplify.**

7)  $(-0.9r^2s^9t^3)^4$

A)  $3.6r^2s^9t^{12}$

B)  $-0.6561r^8s^{36}t^{12}$

C)  $-0.9r^6s^{13}t^7$

D)  $0.6561r^8s^{36}t^{12}$

8)  $(-3xy^4)^3$

A)  $27x^3y^{12}$

B)  $-27x^3y^{12}$

C)  $-9xy^7$

D)  $9xy^7$

Math Connections

9)  $(2x^7)^4(3x^4y^9)$

A)  $48x^{32}y^9$

B)  $6xy^{32}$

C)  $46x^{31}y^8$

D)  $6x^{23}y^9$

10)  $\left(-\frac{1}{2}xy^6z^8\right)^2\left(\frac{1}{2}x^8y^6z\right)^2$

A)  $\frac{1}{4}x^{11}y^{14}z^{11}$

B)  $\frac{1}{16}x^{11}y^{14}z^{11}$

C)  $-\frac{1}{4}x^{18}y^{24}z^{18}$

D)  $\frac{1}{16}x^{18}y^{24}z^{18}$

**Solve the problem. Express the answer in scientific notation to two decimals unless requested otherwise.**

11) The national debt of a small country is \$7,100,000,000 and the population is 2,915,000. What is the amount of debt per person?

A) \$24.36

B)  $\$2.44 \times 10^3$

C)  $\$2.44 \times 10^6$

D) \$2.44

12) Assume that the volume of the earth is  $5 \times 10^{14}$  cubic meters and the volume of a bacterium is  $2.5 \times 10^{-16}$  cubic meters. If the earth could be filled with bacteria, how many would it contain? (Round to one decimal place.)

A)  $5.0 \times 10^{-31}$  bacteria

B)  $2.0 \times 10^{30}$  bacteria

C)  $2.0 \times 10^{-30}$  bacteria

D)  $5.0 \times 10^{31}$  bacteria

**Write the word or phrase that best completes each statement or answers the question.**

**Provide an appropriate response.**

13) Find and explain the mistake(s); then work the problem correctly.

$$(-4mn^5)^7 = -28m^7n^{12}$$

14) Find and explain the mistake(s); then work the problem correctly.

$$-3x^2y \cdot 7x^{10}y^9 = -21x^{20}y^9$$

## EXPONENT RULES AND MULTIPLYING MONOMIALS

- 1) B
- 2) B
- 3) B
- 4) D
- 5) C
- 6) D
- 7) D
- 8) B
- 9) A
- 10) D
- 11) B
- 12) B
- 13) Explanations will vary. The correct answer is  $-16,384m^7n^{35}$ .
- 14) Explanations will vary. The correct answer is  $-21x^{12}y^{10}$ .