

NAME \_\_\_\_\_

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PERIOD \_\_\_\_\_

## Unit 6, Lesson 12: Meaning of Exponents

 1. Select **all** expressions that are equivalent to 64.

$$\begin{array}{c}
 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \\
 \underbrace{\quad\quad}_4 \quad \underbrace{\quad\quad}_4 \quad \underbrace{\quad\quad}_4 \quad \underbrace{\quad\quad}_4 \\
 8 \cdot 8 = 64
 \end{array}$$

- A.  $2^6$
- B.  $2^8$
- C.  $4^3$
- D.  $8^2$
- E.  $16^4$
- F.  $32^2$

 2. Select **all** the expressions that equal  $3^4$ .

$$\begin{array}{c}
 3 \cdot 3 \cdot 3 \cdot 3 \\
 \underbrace{\quad\quad}_9 \quad \underbrace{\quad\quad}_9 \\
 3^4 = 81 \\
 9^2 = 81
 \end{array}$$

- A. 7
- B.  $4^3$
- C. 12
- D. 81
- E. 64
- F.  $9^2$

 3.  $4^5$  is equal to 1,024. Evaluate the following expressions.

a.  $4^6$  another  $\times 4$

$$\begin{array}{r}
 1024 \\
 \cdot 4 \\
 \hline
 4096
 \end{array}$$

b.  $4^4 \div$  by 4

$$\begin{array}{r}
 256 \\
 4 \overline{)1024} \\
 \underline{400} \\
 624 \\
 \underline{400} \\
 224 \\
 \underline{200} \\
 24
 \end{array}$$

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

$$\begin{array}{c}
 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \\
 1024
 \end{array}$$

 4.  $6^3 = 216$ . Using exponents, write three more expressions whose value is 216.

 5. Find two different ways to rewrite  $3xy + 6yz$  using the distributive property. (from Unit 6, Lesson 11)

$$\begin{array}{l}
 3(x + 2z) \\
 3y(x + 2z) \\
 y(3x + 6z)
 \end{array}$$

6. Solve each equation.

a.  $a - 2.01 = 5.59$

(from Unit 6, Lesson 5)

$$\begin{array}{r}
 2.01 \\
 7.59 \\
 \hline
 7.51
 \end{array}$$

b.  $b + 2.01 = 5.56$

$$\begin{array}{r}
 5.56 \\
 -2.01 \\
 \hline
 3.49
 \end{array}$$

c.  $10c = 13.71$

$$\begin{array}{r}
 10 \overline{)13.71} \text{ or } \frac{13.71}{10} \\
 1.371
 \end{array}$$

d.  $100d = 13.71$

$$\begin{array}{r}
 100 \overline{)13.71} \text{ or } \\
 13.71 \\
 \hline
 100 \\
 \hline
 .1371
 \end{array}$$

 7. Which expressions represent the total area of the large rectangle? Select **all** that apply.

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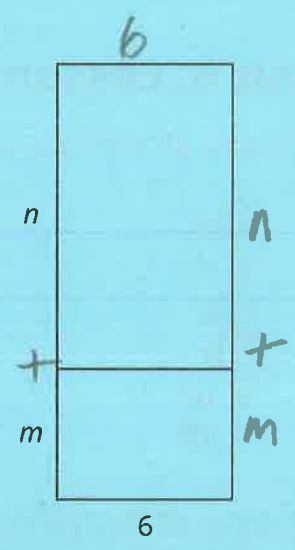
- A.  $6(m + n)$
- B.  $6n + m$  NO
- C.  $6n + 6m$
- D.  $6mn$  NO
- E.  $(n + m)6$

Area = length  $\times$  width

$$m+n \cdot 6$$

$$6(m+n)$$

$$6m + 6n$$



(from Unit 6, Lesson 10)

8. Is each statement true or false? Explain your reasoning.

a.  $\frac{45}{100} \cdot 72 = \frac{45}{72} \cdot 100$

NO  $\frac{45 \cdot 72}{100}$

b. 16% of 250 is equal to 250% of 16

(from Unit 3, Lesson 16)

2.5

Yes

$$\begin{array}{r} 3250 \\ \times .16 \text{ (2)} \\ \hline 1500 \\ 250 \\ \hline 400.00 \end{array}$$

$$\begin{array}{r} 32.5 \text{ (1)} \\ \times 16 \\ \hline 150 \\ 25 \\ \hline 400.00 \end{array}$$

→ same digits and each has one number that is divided by 100