

Math 6 - Unit 3: Expressions

End of Unit Study Guide

Name: KEY

Class Period: 1 2 3 4 Date: _____

1) What is the name of a number that multiplies a variable, such as the "9" in the term "9x"?

9 is a coefficient.

2) Evaluate: $(6^2 - 8 \div 4) + 27$

$$\begin{array}{r} (36 - 8 \div 4) + 27 \\ (36 - 2) + 27 \\ 34 + 27 \\ \hline 61 \end{array}$$

$$\begin{array}{r} 34 \\ + 27 \\ \hline 61 \end{array}$$

3) Write in exponential form: $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^5$

4) Evaluate $n^2 + 4n + 4$ if $n = 7$

$$\begin{array}{r} 7^2 + 4(7) + 4 \\ 49 + 4(7) + 4 \\ 49 + 28 + 4 \\ 77 + 4 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 49 \\ + 28 \\ \hline 77 \end{array}$$

5) Write an expression that represents "12 more than a number?"

$$n + 12$$

6) Simplify this expression by combining like terms: $7n + 15n^2 + 13n - 14n^2$

$$\begin{array}{r} 7n + 13n + 15n^2 - 14n^2 \\ 20n + n^2 \end{array}$$

7) The cost of attending a state fair is \$3.25 for admission, plus an additional \$0.25 for each ride ticket purchased. Write an expression to represent the cost of attending the fair and purchasing t tickets.

$$3.25 + .25t$$

8) Which expression is NOT equivalent to the others? (Hint: Look closely at the operations.)

A) $7(6 + 9)$

B) $42 + 63$
 $\frac{42}{105}$

C) $7 \cdot 15$

D) $7(6) \cdot 7(9)$

$$\frac{35}{105}$$

9) Apply the distributive property to simplify the expression: $12(5x + 3)$

\downarrow
mamma babies

$$\begin{array}{r} 12 \cdot 5x + 12 \cdot 3 \\ \hline 60x + 36 \end{array}$$

10) Evaluate to find the volume of a cube with side length $s = \frac{1}{3}$; $V = s^3$

$$V = \left(\frac{1}{3}\right)^3$$

$$V = \left(\frac{1}{3}\right)\left(\frac{1}{3}\right)\left(\frac{1}{3}\right) = \frac{1}{27} \text{ units}^3$$

11) Evaluate "4 squared." $4^2 = 4 \cdot 4 = 16$

12) The expression $120 + 15n$ can be used to find the total price for n students to take a field trip to the science museum. Determine the cost if $n = 3$ students to visit the science museum.

$$120 + 15(3)$$

$$120 + 45$$

$$\boxed{\$165}$$

13) Factor to write an expression that is equivalent to $30x + 5$.

$$\boxed{5(6x+1)}$$

14) Translate into an algebraic expression: nine less than the difference of seven squared and six.

$$(7^2 - 6) - 9$$

15) Neveah and 4 of her friends order a large pizza for \$8 and n medium drinks for \$3 each. If they split these costs evenly, which expression can be used to find the amount each girl should pay?

$$\boxed{\frac{8+3n}{4}}$$

16) Write an example of the commutative property?

$$4 \cdot 5 = 5 \cdot 4$$

17) Label the parts of the expression:

$$4n + 15$$

Labels: coefficient (4), variable (n), constant (15)

18) A family of four (2 adults and 2 kids) is going to the pumpkin patch. Regular admission is \$12 for adults and \$4 for kids. How much will they pay to get in?

$$12a + 4k = T$$

$$12(2) + 4(2) = T$$

$$24 + 8 = T$$

$$\boxed{\$32}$$

19) Simplify the expression $7(n+3) + 12n$

$$7 \cdot n + 7 \cdot 3 + 12n$$

$$\boxed{7n} + \boxed{21} + \boxed{12n}$$

$$7n + 12n + 21$$

$$\boxed{19n + 21}$$

20) What are like terms?

Terms that have the same variable to the same power (exponent)