Name **Key** Date_____ Period_____

Math 6 Unit 3: Expressions   Study Guide

Match the word with the definition.

~~Order of Operations~~   ~~Coefficient~~   ~~Algebraic expression~~   ~~Like terms~~   ~~Variable~~
Commutative Property   ~~exponent~~   Associative Property   Distributive Property

Alg Exp 1. A mathematical sentence with numbers, operation(s), and variable(s).

Variable 2. A symbol, usually a letter, that represents a number.

Exponent 3. A number that shows how many times to multiply the base number by itself.

Like terms 4. Terms whose variables are the same

Coefficient 5. A number that is multiplied by the variable(s)

O.o.O 6. A specific order in which operations must be performed in order to always get the correct answer.

Comm 7.   7 + 3 + 4 = 4 + 3 + 7   **Dist** 8.   7(x + 3) = 7x + 21

~~Comm~~ **Associative** 9.   (7 + 6) + 4 = 7 + (6+ 4)

Simplify:

10. 2 + 3 • 4

$2 + 12$
14

11. $4(12 - 2^3) \div (8 - 2)$

$4(12 - 8) \div 6$
$4(4) \div 6$
$16 \div 8$
2

12. $12x - 4x + 7 + 25y - 3 + 15y$

$8x + 40y + 4$

13. Write using exponents: $5 \times 5 \times 5 \times 5 \times 5 \times 5 =$ ___ 5^6 ___

14. Evaluate the following expressions. $4^3 =$ ___ 64 ___ $4^0 =$ ___ 1 ___

Evaluate:

15. $6(y + 7)$ for y=3

60

16. $b^2 + 2$ for b=4

$16 + 2$
18

17. $2x + 4y + 5$ for y= 3, x= 5

$60 + 12 + 5$ $10 + 12 + 5$
$72 + 5$ $22 + 5$
77 27

Apply the distributive property to write an equivalent expression (Simplify):

18. 4(2x + 4)

$8x + 16$

19. 5(x + 3) + 2

$5x + 15 + 2$
$5x + 17$

20. 3(y - 2x)

$3y - 6x$

Write the following statement as an expression:

21. The product of a number and 12

$12x$

22. The product of 7 and a number increased by 2

$7x + 2$

23. The cost of an ice cream cone is $1.99 plus an additional $1.29 for each scoop of ice cream. Write an expression to represent the cost of an ice cream cone with x scoops.

    A. $1.99 + 1.29$ B. $1.99x + 1.29$ C. $1.99 + 1.29x$ D. $3.28x$

24. The formula $C = \frac{5}{9}(F - 32)$ can be used to convert Fahrenheit temperatures to Celsius temperatures. Change 59°F to Celsius (F = 59)

$$\frac{5}{9}(59-32)$$
$$\frac{5}{9}\left(\frac{27^3}{1}\right) = 15\,°C$$

25. The expression 300 + 7c can be used to determine the cost of a new ipad and cover. Determine the cost with a $40 cover (c).

$$300+7c$$
$$300+7(40)$$
$$300+280$$
$$580$$

26. Oscar bought "t" ride tickets at the carnival. Sadie bought 4 times as many ride tickets as Oscar. Which expression represents the **_total_** number of ride tickets that Oscar and Sadie bought?

    A. $4t + 4t$ B. $t + 4t$ C. $t + 4$ D. $4t$

27. The county fair charges $8 for adult tickets and $5 for children. Write an expression for the total cost if a adults and c children attend the fair.

    A. $8 + 5$ B. $a + c$ C. $13t$ D. $8a + 5c$

28 Music Biz rents mp3 players by the day. The store charges $6.00 per day and a one-time enrollment fee of $2.50. If "$d$" represents the number of days, which expression can be used to determine the total charge, in dollars, to rent a mp3 player for "d" days?

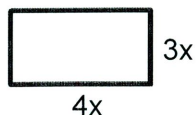   A. $6(d + 2.50)$ B. $2.50 + 6$ C. $6d + 2.50$ D. $8.50d$

29. Use the formula $V = s^3$ to find the volume of a cube with a side length of $\frac{2}{3}$ inches.

$$V = S^3$$
$$\frac{S \cdot S \cdot S}{\frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3}} = \frac{8}{27}$$

30. Write an expression to find the perimeter of this rectangle..

    [rectangle] 3x
    4x

$$4x + 3x + 4x + 3x$$
$$8x + 6x$$
$$14x$$

Determine if the following are true or false (circle your answer).

31. $4 - f = f - 4$ True or False

32. $a + a + a + a + b + b = a^3 + b^2$ True or False