Name: _____ Class: ___ Date: _____

EVALUATING ALGEBRAIC EXPRESSIONS

To evaluate an algebraic expression or formula, substitute the value for the variable. Then follow the Order of Operations (PEMDAS).

Variables: letters which represent an amount that can change, or vary. _____

_____

Algebraic Expression: word phrases which contain at least one variable, one number, and one operation.

Algebraic Equation: has an equals sign because your purpose is to solve it. _____

_____

Substitution with a Variable

Steps	Examples
1. Replace the variable with a number.	
2. Simplify the expression.	

example:

Evaluate $5x + x^3$ for $x = 3$

Step 1:   5 x 3 + 3^3
Step 2:   5 x 3 + 27
Step 3:   15 + 27
Step 4:   42

Evaluate $5x + x^3$ for $x = 2$

Step 1:
Step 2:
Step 3:
Step 4:

Evaluate $5x + x^3$ for $x = 1$

Step 1:
Step 2:
Step 3:
Step 4:

Evaluate $5x + x^3$ for $x = 0$

Step 1:
Step 2:
Step 3:
Step 4:

Evaluate each expression if $w = 15$.

1. $w - 9$ ____

2. $w \div 5$ ____

3. $6 + w$ ____

4. $30 \div w$ ____

5. $3w$ ____

6. $28 - w$ ____

7. $4w$ ____

8. $w + 8$ ____

9. $w \div 3$ ____

10. $80 - w$ ____

11. $w - 2$ ____

12. $90 \div w$ ____

Evaluate the following expressions for $x = 3$, $x = 2$, $x = 1$, and $x = 0$.

13. $13 + 6x$ _____   _____   _____   _____

14. $5x + 2$ _____   _____   _____   _____

15. $2x + 3 + x^2$ _____   _____   _____   _____

16. $2x + x^2$ _____   _____   _____   _____

Evaluate the expressions for the given values of the variables.

17. $7x + y + 16$ for $x = 2$, $y = 3$ _____

18. $8a + 11 - 2b$ for $a = 4$, $b = 2$ _____

19. $12b - 2c + 3$ for $b = 5$, $c = 10$ _____

20. $15 - s + sr$ for $r = 6$, $s = 8$ _____

21. The formula $P = 2l + 2w$ gives the perimeter P of a rectangular room with length l and width w. A rectangular living room is 26 feet long and 21 feet wide. What is the perimeter of the room?

    _____

22. The formula $c = 5(f - 32) \div 9$ gives the Celsius temperature in c degrees for a Fahrenheit temperature of f degrees. What is the Celsius temperature for a Fahrenheit temperature of 120 degrees?

    _____

23. The expression $(p \div 20)$ x 4 gives the time in minutes that a person will have to wait to ride a roller coaster when there are p people in front of him or her. How long will Nathan have to wait if there are 60 people in front of him?

    _____

24. The distance, in meters, that Lisette runs during track practice is equal to $400l + 100s$, where l is the number of laps and s is the number of sprints. How far does Lisette run when she does 4 laps and 6 sprints?

    _____

25. Which expression shows the sum of 5 and the product of 2 and h?

    A. $5 + 2h$ B. $5 + 2 + h$ C. 5 x 2 x h D. $5(2 + h)$