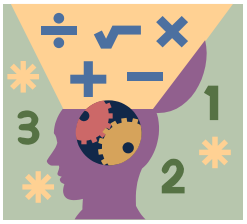
Name_____ Date _____

Unit 1: Expressions

Quiz 1 Study Guide: Using Variables & Expressions

A variable is a symbol, usually a letter, used to represent an unspecified number. It is used in to "translate" verbal expressions into algebraic expressions or formulae. Math symbols are used to indicate what type of computation to do. Here are some examples of expressions using mathematical operations and variables:

Addition:	
4 plus a number	$4 + x$
5 more than a number	$x + 5$
A number increased by 3	$x + 3$
The sum of a number and 2	$x + 2$



Subtraction:	
The difference of a and b	$a - b$
3 less than a number	$x - 3$
A number decreased by 8	$x - 8$
A number less 6	x - 6

Multiplication:	
The product of a and b	ab
5 times a number	$5x$
Twice a number	$2x$

Division:	
The quotient of a and b	$a \div b$
A number divided by 8	$x \div 8$
The ratio of x and y	$x \div y$

Exponents:	
The square of a number	x^2
The cube of a number	x^3
A number raised to the 5^{th} power	x^5

Write a variable (word) expression for each algebraic expression.

1. $3x + 7$

2. $x - 9$

3. $x^2 - 2x$

4. —

Write an algebraic expression for each variable expression.

5. twice a number increased by 5

6. the sum of a number and 6

7. the quotient of 8 and x 8.

8. less than a number

9. the square of a number decreased by 3

10. the difference of x and x squared

Note the similarities and the differences in the following expressions

11. the sum of twice x and y

12. twice the sum of x and y

13. 4 times the difference of a and b

14. the difference of 4 times a and b

Write each expression using exponents.

15. 9 to the third power

16. $8 \cdot 8 \cdot 8 \cdot 8$

17. $5 \cdot b \cdot b \cdot c \cdot c \cdot c$

Evaluate each expression.

18. 3^4

19. 5^3

20. 10^7