Math 8 Name: _____

Algebra Unit Review Block: _____

Fill in the blanks.

1. A letter that represents an unknown number is called a _____.
2. The opposite of multiplication is _____, and opposite of subtraction is _____.
3. A number in front of brackets that multiplies everything inside is called a _____.
4. 5 (b + 3) = 5b + 15 is an example of the _____ .
5. To solve an equation you need to _____ the variable.

Translate each phrase to an expression.

1. A number increased by ten _____
2. Half a number _____
3. Three decreased by a number _____
4. A number squared _____
5. Five less than four times a number _____

Evaluating Expressions

For the following expressions, evaluate when $x = -7$ and $y = -2$

$3x + 9$	$-7x + 4y$
$4x - 7y$	$-3y - 2x$

Solving Equations

Solve each equation by using the opposite operations. Show your work and check your solution.

$x - 5 = 19$	$8 = 11 + x$	$22 - x = 9$
$-5 = \frac{x}{3}$	$6x = -18$	$\frac{x}{-2} = -7$
$3x + 8 = 20$	$-12 + 9p = 24$	$130 = 12n - 5$
$\frac{x}{15} - 7 = -11$	$2 - \frac{x}{3} = 17$	$-2 = \frac{x}{4} - 11$

Show whether $x = -5$ is the solution to each equation. ***DO NOT SOLVE!!!!***

$-7x - 2 = 33$	$30 = 2x + 20$	$4 - 3x = 19$

Expand each expression using the Distributive Law.

$5\,(x + 7)$	$-4\,(x + 3)$	$-3\,(x - 11)$

Solve for x. Use the Distributive Law or a division strategy as discussed in class.

$6(x - 13) = -24$	$-14 = 2(x + 4)$

Word Problems!

1. Zoe has a collection of CDs and DVDs. The number of CDs she has is three fewer than four times the number of DVDs. Zoe has 25 CDs.
    a. Choose a variable to represent the number of DVDs Zoe has. _____
    b. Write and equation that represents the situation.
    c. How many DVDs does Zoe have?

2. Jase is eleven years old and has a little brother named Henry. Jase is three years older than twice Henry's age.
    a. Choose a variable to represent Henry's age. _____
    b. Write an equations that describes the ages of both brothers.
    c. Solve the equation → How old is Henry?

3. Lisa has a vegetable garden that is shaped like a rectangle. It measures 5 m along one edge. The other side is to be increased by 3 m so that the garden has a total area of 90 m^2.
    a. Sketch the garden and label the width and length.
    b. Write an equation to represent the situation. (*Recall area of a rectangle: $A = l \times w$*)
    c. Solve to determine the original side length of the garden.
    d. What will the new dimensions of the garden be?