

Algebra Unit Review

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Fill in the blanks.

1. A letter that represents an unknown number is called a _____
2. The opposite of multiplication is _____
3. A number that in front of a set of brackets that multiplies everything inside is called a _____
4. $5(b + 3) = 5b + 15$ is an example of how to use the _____ law.
5. The opposite of subtraction is _____
6. To solve an equation we 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 ExpressionsFor 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.

$$x - 5 = 19$$

$$8 = 11 + x$$

$$22 - x = 9$$

$$-5 = \frac{x}{3}$$

$$6x = -18$$

$$\frac{x}{-2} = -7$$

$$3x + 8 = 20$$

$$-12 + 9p = 24$$

$$130 = 12n - 5$$

Solve each equation. Show all your work. Check your work.

$$\frac{x}{15} - 7 = -11$$

$$2 - \frac{x}{3} = 17$$

$$-2 = \frac{x}{4} - 11$$

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.

$$6(x - 13) = -24$$

$$-14 = 2(x + 4)$$

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

$$-7x - 2 = 33$$

$$30 = 2x + 20$$

$$4 - 3x = 19$$

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 an 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 equation 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 m².
 - 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?