Algebra 1 Week 7 Tuesday

Warm Up

Skill 1: Solve showing all steps.

1. $3-(4c+8)=15-2(c-1)+9c$

Skill 2: Write and solve a proportion:

2. The Interact Club collected 3812 cans over the first 3 weeks. If cans are collected at about the same rate during the entire year, how many whole cans will they pick up in 35 weeks?

3. When Darlene was 7 years old she measured 37 inches tall. Now she is 5'6" what is the percent change in Darlene's height? (Hint: convert 5'6" to inches first!)

4. Is x=8 part of the solution set to the following inequality. Be sure to show how you know.

$$3x-(x+2)>4x+2(3x+4)$$

Wk 7 Tues. CW

Absolutely Valuable

In this activity, we will learn to solve **absolute value equations**. An absolute value equation is any equation that contains an absolute value symbol. To start, let's review a little of what we know about the absolute value function.

1. a. $|2| =$ b. $|-2| =$ c. $|-3| =$ d. $|3| =$

2. Circle the numbers in the set S that can be substituted for x to make the equation $|x| = 2$ true.

$$S = \{-3, -2, -1, 0, 1, 2, 3\}$$

3. Circle the numbers in the set S that can be substituted for y to make the equation $|y| = 1$ true.

$$S = \{-3, -2, -1, 0, 1, 2, 3\}$$

Almost every absolute value equation has two answers:
In the equation $|x| = 6$, x could be equal to 6, or x could be equal to -6.
Either value will make the equation true: $|6| = 6$, and $|-6| = 6$

Use the principle above to fill in the blanks for each question below:

4. $|x| = 5$ means that x could be equal to _____ or x could be equal to _____.

5. $|x| = 13$ means that x could be equal to _____ or x could be equal to _____.

6. $|x| = 250$ means that x could be equal to _____ or x could be equal to _____.

Every absolute value equation represents *two* equations combined into one:
$|x| = 10$ means that $x = 10$ or $x = -10$.
$|x - 1| = 7$ means that $x - 1 = 7$ or $x - 1 = -7$

Use this principle to fill in the blanks for each question below:

7. $|x + 3| = 5$ means $x + 3 = 5$ or _____

8. $|2x - 1| = 9$ means _____ or _____

9. $|5 - 3x| = 25$ means _____ or _____

10. $2|5x| = 10$ changes to _____ which means _____ or _____

11. $|3e| - 8 = 7$ changes to _____ which means _____ or _____

Skill 3: Solve Absolute Value Equations

To solve absolute value equations, solve the two equations each represents:

$|y-2|=4$ means $y-2=4$ or $y-2=-4$

$+2\ \ +2$ $\qquad$ $+2\ \ +2$

$y = 6$ or $y = -2$

The solution set is $y=6$ or $y=-2$

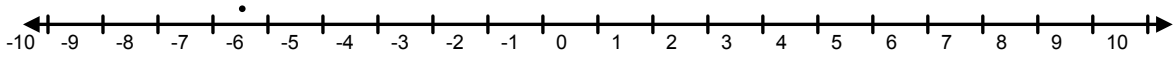
Check: Does $|6-2|=4$? $\qquad$ Does $|-2-2|=4$?

$|4|=4$ Yes. $\qquad$ $|-4|=4$ Yes.

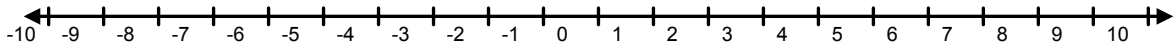
Use this principle to solve each absolute value equation below and check the solutions.

check some of the solutions!

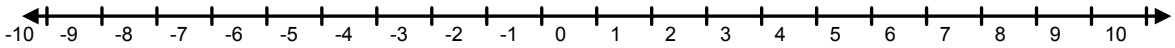
12. $|x+3|=5$



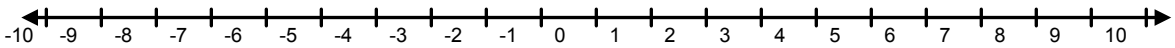
13. $|2x-1|=9$



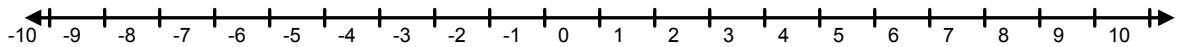
14. $|5-3x|=25$



15. $2|5x|=10$



16. $|3e|-8=7$



Scrambled answers for #12-16: -8, $-\frac{20}{3}$, -5, -4, -1, 1, 2, 5, 5, 10

HW p 211: 11, 15, 17, 21, 25, 27

Solve each equation. Graph and check your solutions.

11. $|n| + 3 = 7$ check:

15. $-3|m| = -9$ check:

17. $|r - 8| = 5$ check:

21. $-2|7d| = 14$ check:

Solve each equation. If there is no solution, write *no solution*.

25. $|4f + 1| - 2 = 5$

27. $4|2y - 3| - 1 = 11$