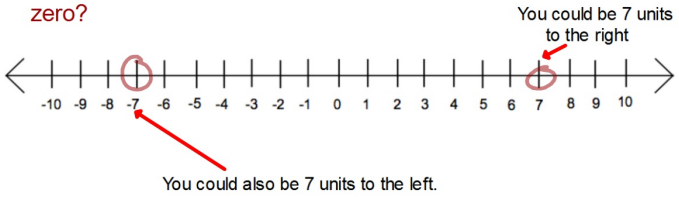
Where could you be located if you are 7 units from zero?



Section 3-6 Absolute Value Equations

What are possible values for x that make this statement true?

$$|x| = 13$$

because |-13| and |13| both equal 13:

$$x = \pm 13$$

Solve.

$$3|x-7| = 45$$

$$\frac{3}{3} \qquad \frac{45}{3}$$

$$|x-7| = 15$$

$$x-7 = 15 \quad \text{or} \quad x-7 = -15$$

$$+7 \quad +7 \qquad +7 \quad +7$$

$$x = 22 \qquad x = -8$$

Solve.

$$|x-9.4| + 1.8 = 15$$

$$-1.8 \quad -1.8$$

$$|x-9.4| = 13.2$$

$$x-9.4 = 13.2 \quad \text{or} \quad x-9.4 = -13.2$$

$$+9.4 \quad +9.4 \qquad +9.4 \quad +9.4$$

$$x = 22.6 \quad \text{or} \quad x = -3.8$$

Solve.

$2|5x+1|-14=6$

$+14 \quad +14$

$\frac{2}{2}|5x+1| = \frac{20}{2} \rightarrow |5x+1| = 10$

$5x+1=10 \quad 5x+1=-10$

$-1 \quad -1 \quad -1 \quad -1$

$\frac{5x}{5}=\frac{9}{5} \quad \frac{5x}{5}=\frac{-11}{5}$

$x=1.8 \quad x=-2.2$

Solve.

$\frac{2.7}{2.7}|4x| = \frac{8.1}{2.7}$

$|4x|=3$

$\frac{4x}{4}=\frac{3}{4} \quad \frac{4x}{4}=\frac{-3}{4}$

$x=.75 \quad x=-.75 \quad x=\pm .75$

Solve.

$|10x+13.9|+26=15$

$-26 \quad -26$

$|10x+13.9|=-11$ NO SOL

The absolute value won't give a negative answer.

Solve.

$\left|\frac{2}{3}x\right|-7=13$

$+7 \quad +7$

$\left|\frac{2}{3}x\right|=20$

$\frac{2}{3}x=+20$ or $\frac{2}{3}x=-20$

$\frac{2}{3}x=20 \quad \frac{2}{3}x=-20$

$\times 3 \quad \times 3 \quad \times 3 \quad \times 3$

$\frac{2x}{2}=\frac{60}{2} \quad x=30 \quad \frac{2x}{2}=\frac{-60}{2} \quad x=-30$

You can now finish Hwk #17

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Problems 16-21, 22, 49

Solve.

$4+3(x-7)+x \le 11-(x+6)+5x$

$4+3x-21+x \le 11-x-6+5x$

$-17+4x \quad +4x$
$-4x \quad -4x$

$-17 \le 5$ TRUE

Since all the variable terms cancelled from the problem and you are left with a true statement the answer is All Real Numbers

Solve: $\frac{11}{9}-\frac{7}{6}M<\frac{5}{12}$

$\frac{4}{4}\cdot\frac{11}{9}-\frac{6}{6}\cdot\frac{7}{6}M<\frac{5}{12}\cdot\frac{3}{3}$

Get all parts of this equation to have the same denominator (LCM of 9, 6, and 12 is 36)

$\frac{44}{36}-\frac{42}{36}M<\frac{15}{36}$

You can now eliminate all the denominators

$44-42M<15$
$-44 \quad -44$

Finish solving the 2-step equation that remains

$\frac{-42M}{-42}<\frac{-29}{-42}$

since you divided both sides by a negative # you must flip the direction of the inequality

$M>\frac{29}{42}$