

1. Solve each equation for the given variable:

(a) $|2x - 3| = 11$

$$2x - 3 = 11 \text{ or } 2x - 3 = -11$$

$$\frac{2x}{2} = \frac{14}{2} \quad \frac{2x}{2} = \frac{-8}{2}$$

$$x = 7 \text{ or } x = -4$$

(b) $3|x - 4| + 1 = 10$

$$\frac{3}{3}|x - 4| = \frac{9}{3}$$

$$|x - 4| = 3$$

$$x - 4 = 3 \text{ or } x - 4 = -3$$

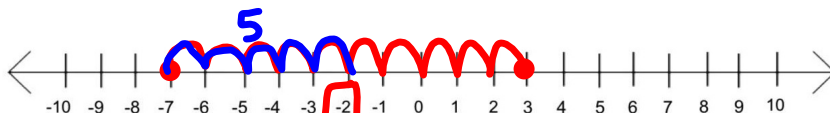
$$x = 7 \text{ or } x = 1$$

(c) $|x + 4| = -2$

NO SOLUTION.

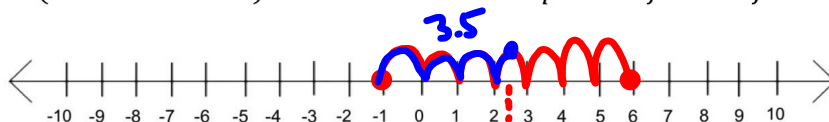
2. Write (but don't solve) an absolute value equation for the following.

(a)



$$|x - 2| = 5 \rightarrow |x + 2| = 5$$

(b) Write (but don't solve) an absolute value equation for the following.



$$|x - 2.5| = 3.5$$

Name: _____

No work No credit

Date: _____

CW # 1-2: Algebra 1 - Sections 2-5 to 2-7

30 points

1. Solve each proportion:

(a) $\frac{4}{n+2} = \frac{7}{n}$

$$7(n+2) = 4n$$

$$7n + 14 = 4n$$

$$\begin{array}{r} -7n \\ \hline 14 = -3n \\ -3 \quad -3 \end{array}$$

$$\frac{14}{-3} = \frac{-3n}{-3}$$

$$n = \frac{-14}{3}$$

(b) $\frac{5}{r-9} = \frac{8}{r+5}$

$$5(r+5) = 8(r-9)$$

$$\begin{array}{r} 5r + 25 = 8r - 72 \\ -5r \quad -5r \end{array}$$

$$25 = 3r - 72$$

$$\begin{array}{r} +72 \\ \hline 97 = 3r \\ \frac{97}{3} = \frac{3r}{3} \end{array}$$

$$r = \frac{97}{3}$$

(c) $\frac{n-6}{n-7} = \frac{9}{2}$

$$2(n-6) = 9(n-7)$$

$$2n - 12 = 9n - 63$$

$$\begin{array}{r} -9n \\ \hline -7n - 12 = -63 \\ +12 \quad +12 \end{array}$$

$$\frac{-7n}{-7} = \frac{-51}{-7}$$

$$n = \frac{51}{7}$$

2. Write and Solve each proportion:

(a) The ratio of boys to girls in Ms. Alper's math classes is 5 : 7. If there are 60 students in all of her classes, how many are boys?

RATIO \rightarrow $\frac{\text{Boys}}{\text{Total}} \rightarrow$ $\frac{5}{12} = \frac{x}{60}$

$$\frac{12x}{12} = \frac{300}{12}$$

$$x = 25 \text{ are boys}$$

(b) Three pumps can remove a total of 1700 gallons of water per minute from a flooded mineshaft. If engineers want to remove at least 5500 gallons per minute, how many pumps will they need operating?

RATIO $\frac{\text{Pumps}}{\text{gallons}} \rightarrow$ $\frac{3}{1700} = \frac{x}{5500}$

$$\frac{1700x}{1700} = \frac{16500}{1700}$$

$$x = 9.7 \rightarrow \text{will need 10 pumps}$$

Name: _____

No work No credit

Date: _____

CW # 1-2: Algebra 1 - Sections 2-5 to 2-7

30 points

3. Solve each literal equation for the given variable:

(a) $ax + by = c$ for y

$$\cancel{-ax} \quad \cancel{-ax}$$

$$\frac{by}{b} = \frac{-ax + c}{b}$$

$$y = -\frac{a}{b}x + \frac{c}{b}$$

(a) $R = C(1 + r)$ for r

$$\frac{R}{C} = \frac{C}{C}(1 + r)$$

$$\frac{R}{C} - 1 = r$$

(a) $S = 2\pi rh$ for r

$$\frac{S}{2\pi h} = \frac{2\pi rh}{2\pi h}$$

$$\frac{S}{2\pi h} = r$$

(a) $V = \frac{KT}{P}$ for T

$$\cancel{V} = \frac{KT}{\cancel{P}}$$

$$\frac{VP}{K} = \frac{KT}{K}$$

$$\frac{VP}{K} = T$$

(a) $2x - 5y = 20$ for y

$$\cancel{-2x} \quad \cancel{-2x}$$

$$\frac{-5y}{-5} = \frac{-2x + 20}{-5}$$

$$y = \frac{2}{5}x - 4$$

(a) $-3x + 7y = 14$ for y

$$\cancel{+3x} \quad \cancel{+3x}$$

$$\frac{7y}{7} = \frac{3x + 14}{7}$$

$$y = \frac{3}{7}x + 2$$