#line:

-7 -1 0

I.N.: $(-\infty, -7) \cup (-1, \infty)$

Set: $\{x \mid x > -1 \text{ or } x < -7\}$

$\dfrac{2|2x+8|}{2} > \dfrac{12}{2}$

$|2x+8| > 6$

OR

① $2x+8 > 6$
$\quad -8 \quad -8$
$\dfrac{2x}{2} > \dfrac{-2}{2}$
$x > -1$

② $2x+8 < -6$
$\quad -8 \quad -8$
$\dfrac{2x}{2} < \dfrac{-14}{2}$
$x > -1$ OR $x < -7$

Word Problems

#line:

-7 -1 0

I.N.: $(-7, -1)$

Set: $\{x \mid x < -1 \ \& \ x > -7\}$

$\dfrac{3|x+4|-8}{3} < \dfrac{1}{3}$
$\qquad +8 \quad +8$

$\dfrac{3|x+4|}{3} < \dfrac{9}{3}$

$|x+4| < 3$

① $x+4 < 3$
$\quad -4 \quad -4$
$x < -1$

AND

② $x+4 > -3$
$\quad -4 \quad -4$
$x > -7$

#line:

-7 -1 0

I.N.: $(-\infty, -7] \cup [-1, \infty)$

set: $\{x \mid x \geq -1 \text{ or } x \leq -7\}$

$|2x+8| \geq 6$

$2x+8 \geq 6$
$-8 \quad -8$
$\dfrac{2x}{2} \geq \dfrac{-2}{2}$
$x \geq -1$

$2x+8 \leq -6$
$-8 \quad -8$
$\dfrac{2x}{2} \leq \dfrac{-14}{2}$
or $x \leq -7$

1. Jon won 40 lollipops playing basketball at the school fair. He gave two to every student in his math class. He has 8 lollipops left. Find the number of students in his class.

$40 - 2x = 8$
$-40 \qquad -40$
$\dfrac{-2x}{-2} = \dfrac{-32}{-2}$
$x = 16$

$x = \text{\# of students}$

16 students in his class

2. Jacob spent less than $26 on a magazine and 3 composition notebooks. The magazine cost $5. What was the cost of each composition notebook.

$\$5 + 3n \leq 26$
$-5 \qquad -5$
$\dfrac{3n}{3} < \dfrac{21}{3}$
$n < 7$

$n = \text{cost of notebook}$

Notebooks cost less than $7 each.

3. Angela rented a bike from Sasha's bikes. They charged her $2 per hour, plus a $8 fee. Angela only has $25, how long can she ride the bike?

$\$2h + 8 \leq 25$
$\quad -8 \quad -8$
$\dfrac{2h}{2} \leq \dfrac{17}{2}$
$h \leq 8\frac{1}{2}$

$h = \text{\# of hours able to Bike}$

Angela can rent the Bike for 8 hours or less.

$\$80 + 25w = \$140 - 10w$

$w = \text{\# of weeks}$

Solve eqn.

4. Currently, you have $80 and your sister has $140 in your piggy banks. You both get an allowance of $10 each week. You decide to save $5 of your allowance each week, while your sister decides to spend her whole allowance plus $10 each week. How long will it be before you have as much money as your sister?

	1	2	3	4	
you	$80	$85	$90	$95	$100
sister	$140	$130	$120	$110	$100

on week 4 you will have the same amount of money.

Algebra – Review Unit 2 Summative   Name: Key

Solve Equations

17) $2(a - 3) + 6 = -8$

$2a - 6 + 6 = -8$

$\dfrac{2a}{2} = \dfrac{-8}{2}$

$\boxed{a = -4}$

18) $5(2 + n) = 3(n + 6)$

$10 + 5n = 3n + 18$

$-3n\ -3n$

$10 + 2n = 18$

$-10-10$

$\dfrac{2n}{2} = \dfrac{8}{2}$ $\boxed{n = 4}$

19) $3(30 + g) = 4(g + 19)$

$\begin{array}{r}3/9 \\ \times 4 \\ \hline 76\end{array}$

$90 + 3g = 4g + 76$

$-3g\ \ -3g$

$90 = g + 76$

$-76-76$ $\boxed{14 = g}$

20) $4(3y - 1) + 13 = 5y + 2$

$12y - 4 + 13 = 5y + 2$

$12y + 9 = 5y + 2$

$-5y-5y$

$7y + 9 = 2$

$-9\ -9$

$\dfrac{7y}{7} = \dfrac{-7}{7}$ $\boxed{y = -1}$

5)

$35\left(\dfrac{2}{7}\right) = \left(-x + \dfrac{3}{35}\right)35$

$10 = -35x + 3$

$-3-3$

$\dfrac{7}{-35} = \dfrac{-35x}{-35}$

$\boxed{-1/5 = x}$

8)

$\begin{array}{cc}40 & 40\end{array}$

$\left(\dfrac{y}{8}\right) = \left(-\dfrac{3}{10} + 1\right)$

$5y = -12 + 40$

$\dfrac{5y}{5} = \dfrac{28}{5}$

$\boxed{y = \dfrac{28}{5}}$

7)

$5(k - 2.16) = 4k$

$5k - 10.8 = 4k$

$5k - 10.8 = 4.0k$

$-5k-5k$

$\dfrac{2.16}{-10} \cdot \dfrac{-108 = -10k}{-10}$

$\begin{array}{r}2.16 \\ \times 5 \\ \hline 10.80\end{array}$

$\boxed{10.8 = k}$

9)

$3y + 15.9 = 4(2y + 7.1)$

$(3y + 15.9) = (8y + 28.4)$

$30y + 159 = 80y + 284$

$-80y-80y$

$-50y + 159 = 284$

$-159\ -159$

$\dfrac{-50y}{-50} = \dfrac{125}{-50}$

$\boxed{y = -4\tfrac{1}{2}}$

Solve Inequalities:

Corrections on Formative 2

Solve Absolute Value Equations/ Inequalities

$|5x + 5| + 22 = 57$

$-22\ -22$

$|5x + 5| = 35$

$\begin{array}{ll}5x + 5 = 35 & 5x + 5 = -35 \\ -5\ -5 & -5\ -5 \\ \dfrac{5x = 30}{5} & \dfrac{5x = -40}{5}\end{array}$

$\boxed{x = 6 \quad \text{or} \quad x = -8}$

$|7x| - 3 \le 25$

$+3\ +3$

$|7x| \le 28$

$\begin{array}{ll}\dfrac{7x = 28}{7} & \dfrac{7x = -28}{7}\end{array}$

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