

Fall Practice Final Exam

Date 12/19/17

Solve each equation.

$$1) \begin{array}{r} -24 = 2n \\ \underline{2} \phantom{=} \\ -12 = n \end{array}$$

$$2) \begin{array}{r} -2 = n - 14 \\ \underline{+4} \phantom{=} \quad \underline{+14} \\ 12 = n \end{array}$$

$$3) \begin{array}{r} v + 3 + 3v = -21 \\ \underline{4v + 3} \phantom{=} \quad \underline{-21} \\ \underline{-3} \phantom{=} \quad \underline{-3} \\ 4v = -24 \\ \underline{4} \phantom{=} \quad \underline{4} \\ v = -6 \end{array}$$

$$4) \begin{array}{r} n - 8 - 4 = -5 \\ \underline{n - 12} \phantom{=} \quad \underline{-5} \\ \underline{+12} \phantom{=} \quad \underline{+12} \\ n = 7 \end{array}$$

$$5) \begin{array}{r} -3n - 8(6 + 2n) = -86 \\ \underline{-3n - 48 - 16n} \phantom{=} \quad \underline{-86} \\ \underline{-19n - 48} \phantom{=} \quad \underline{-86} \\ \underline{+48} \phantom{=} \quad \underline{+48} \\ -19n = -38 \\ \underline{-19} \phantom{=} \quad \underline{-19} \quad n = 2 \end{array}$$

$$6) \begin{array}{r} 323 = 5(8x - 1) - 2 \\ \underline{+2} \phantom{=} \quad \underline{+2} \\ 325 = 5(8x - 1) \\ \underline{-5} \phantom{=} \quad \underline{-5} \\ -65 = 8x - 1 \\ \underline{+1} \phantom{=} \quad \underline{+1} \\ -64 = 8x \\ \underline{8} \phantom{=} \quad \underline{8} \\ x = -8 \end{array}$$

Write an equation for and solve each scenario.

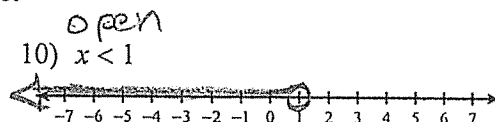
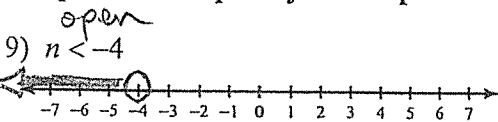
7) Adam bought a magazine for \$7 and seven notepads. He spent a total of \$35. How much did each notepad cost?

$$\begin{array}{r} 7n + 7 = 35 \\ \underline{-7} \phantom{=} \quad \underline{-7} \\ 7n = 28 \\ \underline{7} \phantom{=} \quad \underline{7} \\ n = 4 \end{array}$$

8) Paul won 37 super bouncy balls playing basketball at the county fair. At school he gave two to every student in his math class. He only has 7 remaining. How many students are in his class?

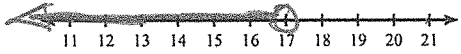
$$\begin{array}{r} 2s + 7 = 37 \\ \underline{-7} \phantom{=} \quad \underline{-7} \\ 2s = 30 \\ \underline{2} \phantom{=} \quad \underline{2} \\ s = 15 \end{array}$$

Graph each inequality on the provided number line.



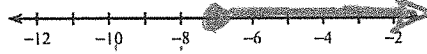
Solve each inequality and graph the solution on the provided number line.

11)  $x - 16 < 1$  *open*



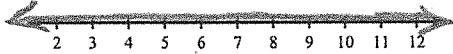
$$\begin{aligned} x - 16 &< 1 \\ +16 & \quad +16 \\ x &< 17 \end{aligned}$$

12)  $6 \leq m + 13$  *solid*



$$\begin{aligned} 6 &\leq m + 13 \\ -13 & \quad -13 \\ -7 &\leq m \\ m &\geq -7 \end{aligned}$$

13)  $b + 2 - b \leq 2$



$$\begin{aligned} b + 2 - b &\leq 2 \\ 0 + 2 &\leq 2 \\ \text{true} & \\ \text{so } b &\in \mathbb{R} \end{aligned}$$

14)  $-11 > -7a - 4a$



$$\begin{aligned} -11 &> -7a - 4a \\ -11 &> -11a \\ \frac{-11}{-1} &> \frac{-11a}{-1} \\ 1 &< a \\ a &> 1 \text{ open} \end{aligned}$$

Solve each absolute value equation for both positive and negative possibilities.

15)  $|n - 9| = 11$

$$\begin{aligned} n - 9 &= 11 \\ +9 & \quad +9 \\ n &= 20 \end{aligned}$$

$$\begin{aligned} -(n - 9) &= 11 \\ -1 & \quad -1 \\ n - 9 &= -11 \\ +9 & \quad +9 \\ n &= -2 \end{aligned}$$

16)  $|-2b| = 18$

$$\begin{aligned} -2b &= 18 \\ -2 & \quad -2 \\ b &= -9 \end{aligned}$$

$$\begin{aligned} -(-2b) &= 18 \\ 2b &= 18 \\ \frac{2b}{2} &= \frac{18}{2} \\ b &= 9 \end{aligned}$$

17)  $-4 + |-10a| = 76$

$$|-10a| = 80$$

$$\begin{aligned} -10a &= 80 \\ -10 & \quad -10 \\ a &= -8 \end{aligned}$$

$$\begin{aligned} -(-10a) &= 80 \\ 10a &= 80 \\ \frac{10a}{10} &= \frac{80}{10} \\ a &= 8 \end{aligned}$$

18)  $\left|\frac{n}{3}\right| = 1$  *-5 -5 +5 = 6*

$$\begin{aligned} \frac{n}{3} &= 1 \\ \frac{n}{3} &= 1 \\ n &= 3 \end{aligned}$$

$$\begin{aligned} (-3)\frac{n}{3} &= 1(-3) \\ n &= -3 \end{aligned}$$

19)  $|3v + 1| = 11$

$$\begin{aligned} 3v + 1 &= 11 \\ -1 & \quad -1 \\ 3v &= 10 \\ \frac{3v}{3} &= \frac{10}{3} \\ v &= \frac{10}{3} \end{aligned}$$

$$\begin{aligned} -(3v + 1) &= 11 \\ -1 & \quad -1 \\ 3v + 1 &= -11 \\ -1 & \quad -1 \\ 3v &= -12 \\ \frac{3v}{3} &= \frac{-12}{3} \\ v &= -4 \end{aligned}$$

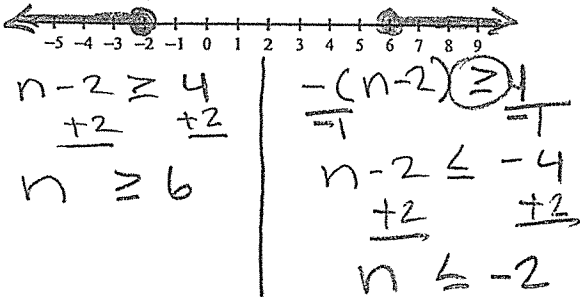
20)  $|n + 9| = 13$

$$\begin{aligned} n + 9 &= 13 \\ -9 & \quad -9 \\ n &= 4 \end{aligned}$$

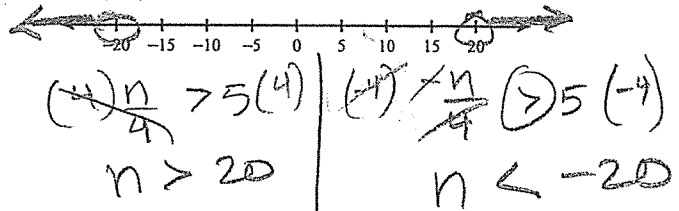
$$\begin{aligned} -(n + 9) &= 13 \\ -1 & \quad -1 \\ n + 9 &= -13 \\ -9 & \quad -9 \\ n &= -22 \end{aligned}$$

Solve each absolute value inequality and graph the solution on the provided number line.

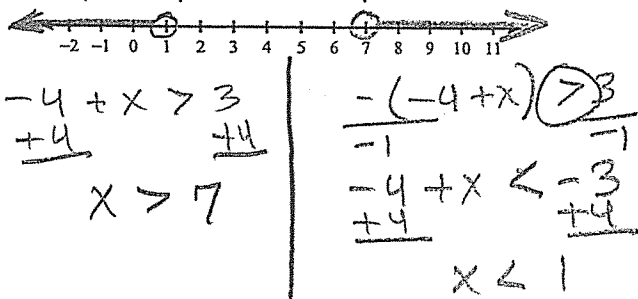
21)  $|n-2| \geq 4$



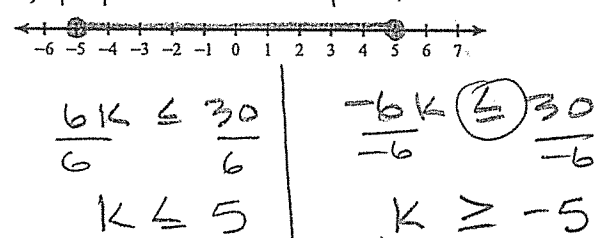
22)  $\left|\frac{a}{4}\right| > 5$



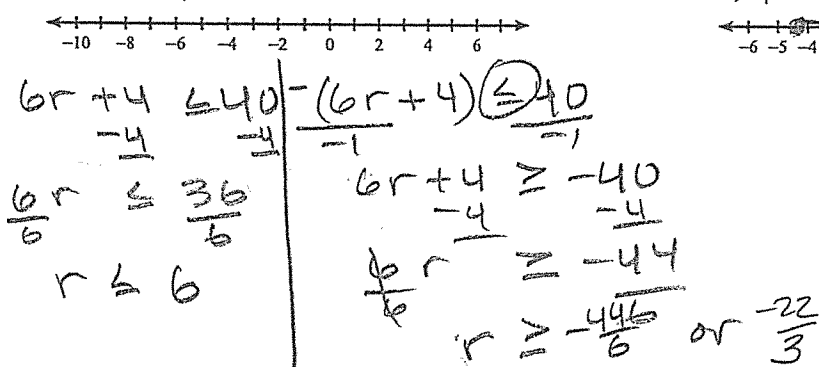
23)  $|-4+x| > 7$



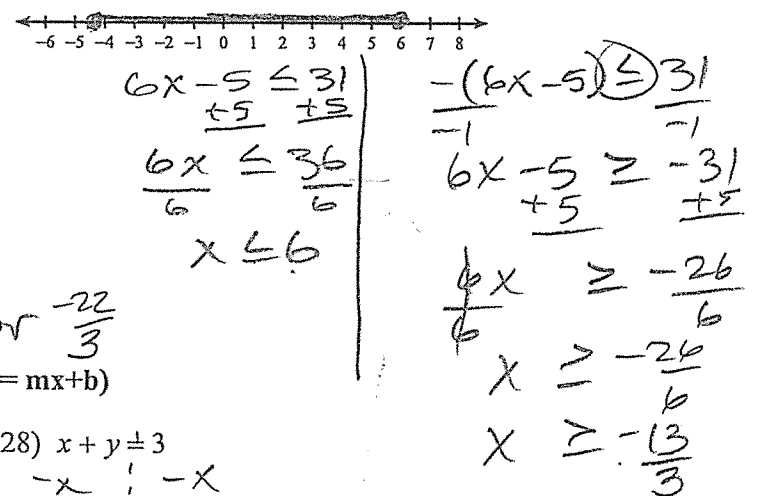
24)  $|6k+7| \leq 37$



25)  $|6r+4| \leq 40$



26)  $|6x-5| \leq 31$



Rewrite each equation in Slope-Intercept Form. ( $y = mx + b$ )

27)  $4x - y = 3$

$$\begin{aligned} 4x - y &= 3 \\ +y & \quad +y \\ \hline 4x &= y + 3 \\ -3 & \quad -3 \\ \hline 4x - 3 &= y \end{aligned}$$

28)  $x + y = 3$

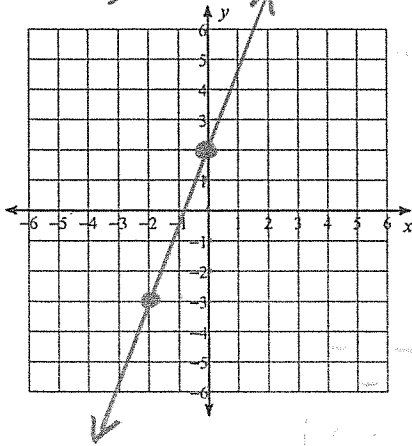
$$\begin{aligned} x + y &= 3 \\ -x & \quad -x \\ \hline y &= -x + 3 \end{aligned}$$

29)  $x - y = -7$

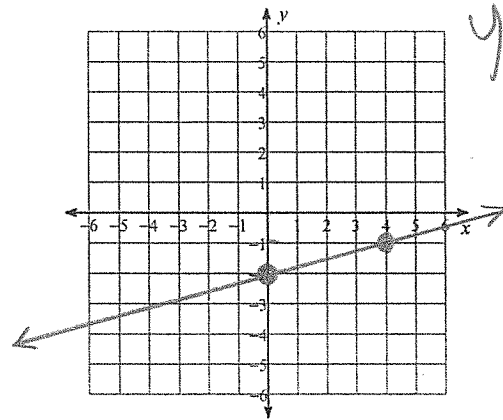
$$\begin{aligned} x - y &= -7 \\ +y & \quad +y \\ \hline x &= y - 7 \\ +7 & \quad +7 \\ \hline x + 7 &= y \end{aligned}$$

Graph each line equation on the grid provided.  
(Rewrite in y-form when needed).

30)  $y = \frac{5}{2}x + 2$



31)  $x - 4y = 8$



Handwritten work for problem 31:  

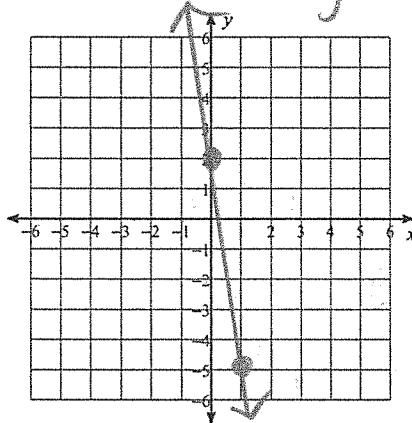
$$\frac{-4y}{-4} = \frac{8-x}{-4}$$

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

Skill#14--Graph each line using an x/y table.

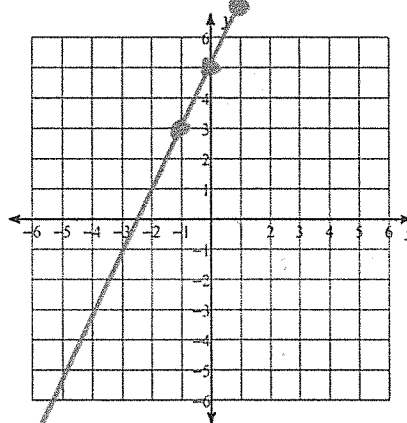
(Make sure your table includes a positive number, zero and a negative number).

32)  $7x + y = 2 \rightarrow y = -7x + 2$



x	y
1	$-7(1) + 2 = -5$
0	2
-1	$-7(-1) + 2 = 9$

33)  $2x - y = -5 \rightarrow 2x + 5 = y$



x	y
1	$2(1) + 5 = 7$
0	5
-1	$2(-1) + 5 = 3$