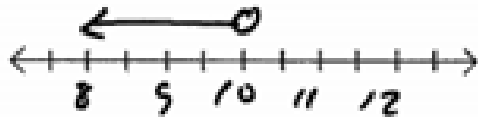


Get out your homework and have it ready to check.

Classwork - Solving and Graphing Inequalities

E) $2x - 4 < 16$

$$\begin{array}{r} +4 \quad +4 \\ \hline 2x < 20 \\ \frac{2x}{2} < \frac{20}{2} \\ x < 10 \end{array}$$



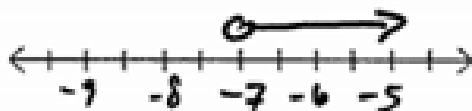
F) $\frac{x}{3} + 5 \geq -2$

$$\begin{array}{r} -5 \quad -5 \\ \hline 3 \cdot \frac{x}{3} \geq -7 \cdot 3 \\ x \geq -21 \end{array}$$



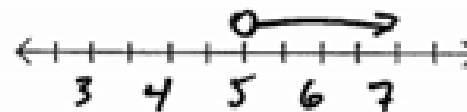
G) $3x - 6 > -27$

$$\begin{array}{r} +6 \quad +6 \\ \hline 3x > -21 \\ \frac{3x}{3} > \frac{-21}{3} \\ x > -7 \end{array}$$



H) $19 < 3x + 4$

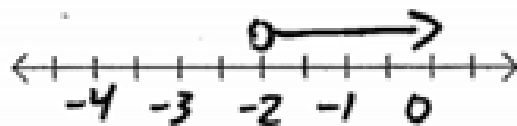
$$\begin{array}{r} -4 \quad -4 \\ \hline 15 < 3x \\ \frac{15}{3} < \frac{3x}{3} \\ 5 < x \text{ or } x > 5 \end{array}$$



2) Solve and graph the following inequalities. Remember the rule we discussed above. SHOW WORK

A) $-5x - 13 < -3$

$$\begin{array}{r} +13 \quad +13 \\ \hline -5x < -10 \\ \underline{-5 \quad -5} \quad \text{Flip} \\ \text{Add} \quad x > -2 \end{array}$$



B) $\frac{x}{2} - 8 \geq -6$

$$\begin{array}{r} +8 \quad +8 \\ \hline 2 \cdot \frac{x}{2} \geq 2 \cdot -2 \\ \text{Add} \quad x \geq 4 \end{array}$$



C) $1.5x - 6 > -15$

$$\begin{array}{r} +6 \quad +6 \\ \hline 1.5x > -9 \\ \underline{1.5 \quad 1.5} \\ x > -6 \end{array}$$



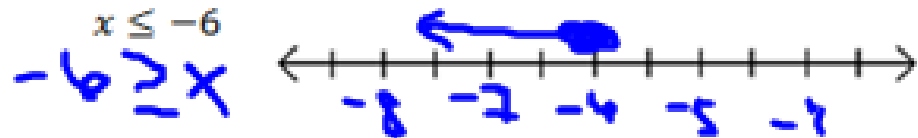
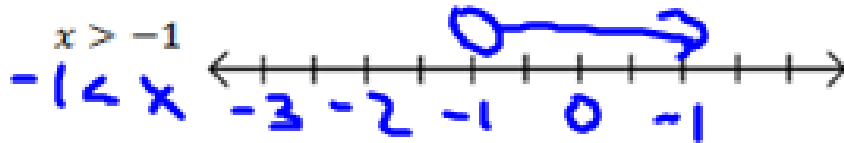
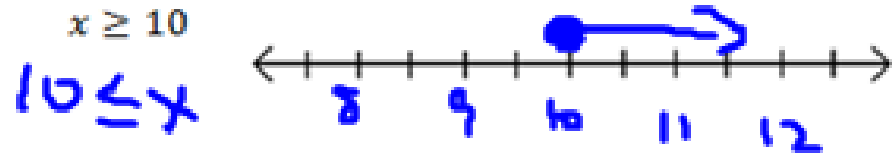
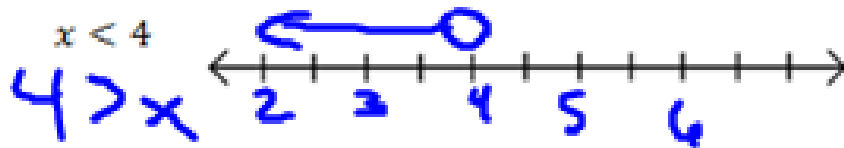
D) $-\frac{1}{4}x + 7 \leq 5$

$$\begin{array}{r} -7 \quad -7 \\ \hline 4 \cdot \frac{-1}{4} x \leq -2 \cdot 4 \\ \text{Flip} \quad \underline{-1 \quad -1} \quad x \geq 8 \end{array}$$



Warm Up

1) Graph the following inequalities to show what values x could possibly be. Show at least 5 #s on the number line.



2) Is 6 a possible solution for x in the inequalities below? (YES or NO) Show your work to prove your answer.

A) $5x - 3 \geq 25$

$$\begin{aligned} 5(6) - 3 &\geq 25 \\ 30 - 3 &\geq 25 \\ 27 &\geq 25 \end{aligned}$$

Yes

B) $\frac{x}{3} - 4 < -6$

$$\begin{aligned} \frac{6}{3} - 4 &< -6 \\ 2 - 4 &< -6 \\ -2 &< -6 \end{aligned}$$

No

C) $-2x + 10 > -2$

$$\begin{aligned} -2(6) + 10 &> -2 \\ -12 + 10 &> -2 \\ -2 &> -2 \end{aligned}$$

No

D) $32 \leq 4x + 9$

$$\begin{aligned} 32 &\leq 4(6) + 9 \\ 32 &\leq 24 + 9 \\ 32 &\leq 33 \end{aligned}$$

Yes

3) Solve and graph the following inequalities. Remember, when multiplying or dividing by a negative number to must flip the inequality symbol. SHOW WORK

A) $x - 9 \leq 5$

$$\begin{array}{r} +9 \quad +9 \\ \hline x \leq 14 \end{array}$$



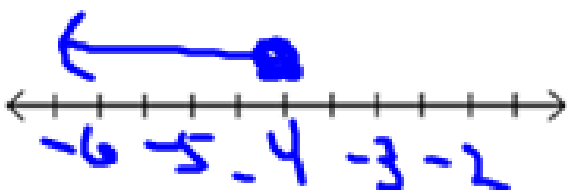
B) $4 \cdot \frac{x}{4} > -3 \cdot 4$

$$x > -12$$



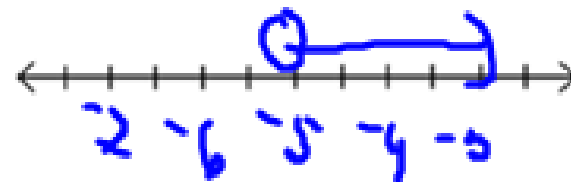
C) $-8x \geq 32$

$$\begin{array}{r} -8 \quad -8 * \text{Flip} \\ \hline x \leq -4 \end{array}$$



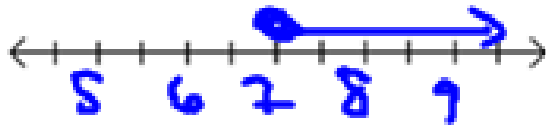
D) $7 < x + 12$

$$\begin{array}{r} -12 \quad -12 \\ \hline -5 < x \\ \text{OR} \\ x > -5 \end{array}$$



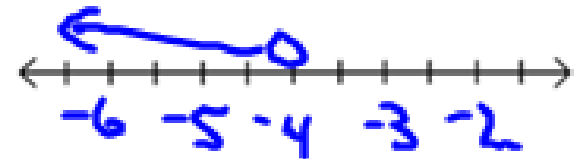
$$E) 6x + 7 \geq 49$$

$$\begin{array}{r} -7 \quad -7 \\ \hline 6x \geq 42 \\ \underline{\quad 6} \quad \underline{\quad 6} \\ x \geq 7 \end{array}$$



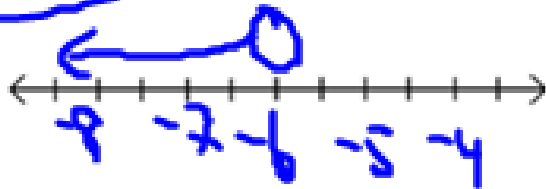
$$F) \frac{x}{2} - 11 < -13$$

$$\begin{array}{r} +11 \quad +11 \\ \hline 2 \cdot \frac{x}{2} < -2 \cdot 2 \\ x < -4 \end{array}$$



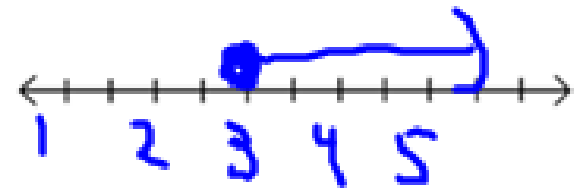
$$G) -3x + 5 > 23$$

$$\begin{array}{r} -5 \quad -5 \\ \hline -3x > 18 \\ \underline{\quad -3} \quad \underline{\quad -3} \\ x < -6 \end{array}$$



$$H) \frac{1}{3}x - 6 \geq -5$$

$$\begin{array}{r} +6 \quad +6 \\ \hline 3 \cdot \frac{1}{3}x \geq 1 - 3 \\ x \geq 3 \end{array}$$



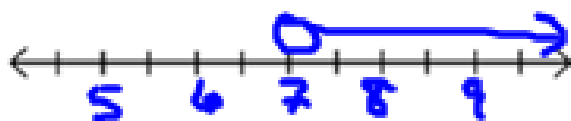
$$I) 41 < 8x - 15$$

$$\begin{array}{r} +15 \quad +15 \\ \hline \frac{56}{8} < \frac{8x}{8} \end{array}$$

$$7 < x$$

OR

$$x > 7$$



$$J) -7x - 4 > -74$$

$$\begin{array}{r} +4 \quad +4 \\ \hline -7x > -70 \\ \hline -7 \quad -7 * \text{Flip} \end{array}$$

$$x < 10$$

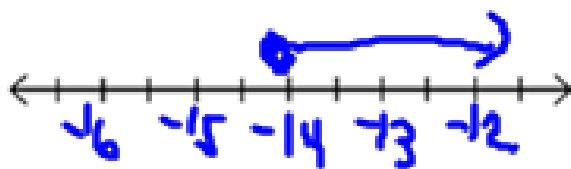


$$K) -\frac{1}{2}x - 3 \leq 4$$

$$\begin{array}{r} +3 \quad +3 \\ \hline 2 \cdot \frac{-1x}{2} \leq 7 - 2 \end{array}$$

$$\begin{array}{r} -1x \leq 5 \\ \hline -1 \quad -1 * \text{Flip} \end{array}$$

$$x \geq -5$$



$$L) \frac{3}{4}x + 13 > 25$$

$$\begin{array}{r} -13 \quad -13 \\ \hline 4 \cdot \frac{3x}{4} > 12 - 4 \end{array}$$

$$3x > 8$$
$$x > \frac{8}{3}$$

