

Warm-Up

A. $-3(4v + 6) = 4 + v - 17$

$$-12v - 18 = 4 + v - 17$$

$$-12v - 18 = 4 - 17 + v$$

$$-12v - 18 = -13 + v$$

$$-13v - 18 = -13$$

$$\frac{-13v}{-13} = \frac{5}{-13}$$

$$v = \frac{5}{13}$$

February 18, 2020

Graph the solution

B. $\frac{x}{6} - 5 \geq -15$

$$\frac{6x}{6} - 30 \geq -90$$

$$|x - 30| \geq -90$$

$$|x| \geq -60$$

$$x \geq -60$$



Section 6.5 Solving Linear Inequalities by Using Multiplication and Division

Does the inequality stay true?

Multiply each side by 2

$$\begin{aligned} & \overset{(2)}{-4} < \overset{(2)}{2} \\ & -8 < 4 \quad \text{True} \end{aligned}$$

Divide each side by 2

$$\begin{aligned} & \frac{-4}{2} < \frac{2}{2} \quad \text{True} \\ & -2 < 1 \end{aligned}$$

Multiply each side by -2

$$\begin{aligned} & \overset{(-2)}{-4} < \overset{(-2)}{2} \\ & 8 < -4 \quad \text{False} \\ & \quad \downarrow \text{reverse sign} \\ & 8 > -4 \quad \text{True} \end{aligned}$$

Divide each side by -2

$$\begin{aligned} & \frac{-4}{-2} < \frac{2}{-2} \\ & 2 < -1 \quad \text{False} \\ & \quad \downarrow \text{reverse sign} \\ & 2 > -1 \end{aligned}$$

* When multiplying or dividing by a negative number in the **last step** of solving inequality you must **Reverse** the sign to make the inequality true

Solve:

A. $-5x < 25$
 $\frac{-5x}{-5} > \frac{25}{-5}$
 $x > -5$

B. $7a \leq -21$
 $\frac{7a}{7} \leq \frac{-21}{7}$
 $a \leq -3$

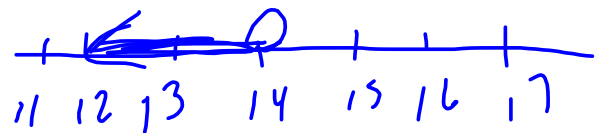
$$-2(3 + 1.5n) < 4(2-n)$$

Solve
Graph

$$-6 - 3n < 8 + 4n$$

$$-6 + 1n < 8 + 6$$

$$1n < 14$$



$$-6(2+6x) > 12+2x$$

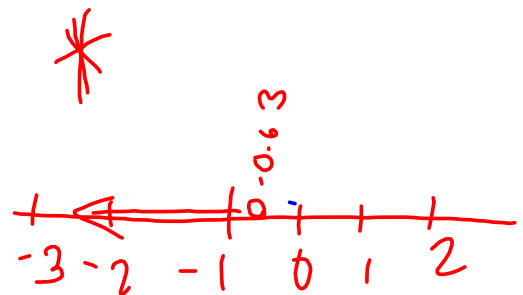
$$-12 - 36x > 12 + 2x$$

$$-12 + 12 - 38x > 12 + 12$$

$$\frac{-38x}{-38} > \frac{24}{-38}$$

↓
Flip

$$x < -0.63$$



Solve
Graph

Remember Eliminate Fractions by Multiplying all terms by the LCM

LCM = 70

$$\frac{1}{2} + \frac{4}{7}p > \frac{13}{10} + 7p$$

$$\overset{(70)}{\frac{1}{2}} + \overset{(70)}{\frac{4p}{7}} > \overset{(70)}{\frac{13}{10}} + \overset{(70)}{7p}$$

$$\frac{70}{2} + \frac{280p}{7} > \frac{910}{10} + 490p$$

$$\boxed{35 + 40p > 91 + 490p}$$

$$35 - 450p > 91$$

$$\underline{-450p} > \underline{56}$$

$$\underline{-450} \downarrow \underline{-450}$$

$$p < -0.12$$



LCM = 12

$$\overset{(12)}{\frac{1}{4}} (x-4) \leq \overset{(2)}{\frac{2}{3}} (2x+5)$$

$$\frac{12}{4} (x-4) \leq \frac{24}{3} (2x+5)$$

$$3(x-4) \leq 8(2x+5)$$

$$3x - 12 \leq 16x + 40$$

$$-13x - 12 \leq 40$$

$$-13x - 12 + 12 \leq 40 + 12$$

$$\frac{-13x}{-13} \leq \frac{52}{-13}$$

$$x \geq -4$$



Homework

Page 305

a) $-9^{(4)} < -2^{(4)}$
 $-36 < -8$ yes

3 all

9 [a,c,e]

11 [a,c]

17 [a,b]

Solve Graph

Answers Pg 517!

