

Warm-Up

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

$$-12v - 18 = v - 17$$

$$-12v - 1v - 18 = \boxed{v - 17}$$

$$-13v - 18 = -17$$

$$\bullet 13v \boxed{-18 + 18} = -17 + 18$$

$$\frac{-13v}{-13} = \frac{1}{-13} v = \frac{1}{13}$$

February 20, 2019

Graph the solution

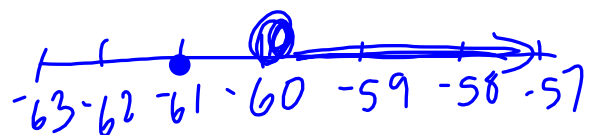
B. $\frac{(6)x}{6} - 5 \geq -15$ (LCM=6)

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

$$x - 30 \geq -90$$

$$x - 30 + 30 \geq -90 + 30$$

$$x \geq -60$$



Section 6.5 Solving Linear Inequalities by Using Multiplication and Division

Does the inequality stay true?

Multiply each side by 2

$$\begin{array}{l} (-2) \cdot -4 < 2 \cdot 2 \\ -8 < 4 \end{array} \quad \text{yes}$$

Divide each side by 2

$$\begin{array}{l} -4 < 2 \\ \frac{-4}{2} < \frac{2}{2} \end{array}$$

Multiply each side by -2

$$\begin{array}{l} (-2) \cdot -4 < 2 \cdot (-2) \\ 8 < -4 \end{array} \quad \text{NO}$$

Divide each side by -2

$$\begin{array}{l} -4 < 2 \\ \frac{-4}{-2} < \frac{2}{-2} \\ 2 < -1 \end{array} \quad \text{NO}$$

* To make these true we would need to Reverse the sign!

* 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

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

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

$$-6 + 1n < 8$$

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

$$\frac{1n < 14}{1 \quad 1}$$

$$n < 14$$



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

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

$$-12-36x-2x > 12+\boxed{2x-2x}$$

$$-12-38x > 12$$

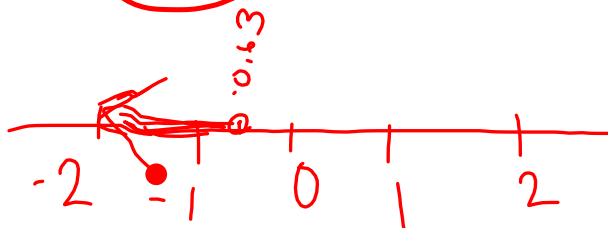
$$\boxed{-12+12}-38x > 12+12$$

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

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

$$x < \frac{-12}{19}$$

(-0.63)



Solve

Graph

Remember Eliminate Fractions by Multiplying all terms by the LCM

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

$$\frac{20}{2} + \frac{280p}{7} > \frac{910}{10} + 490p$$

$$35 + 40p > 91 + 490p$$

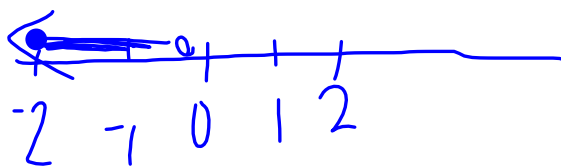
$$35 + 40p - 490p > 91 + 490p - 490p$$

$$35 - 450p > 91$$

$$35 - 35 - 450p > 91 - 35$$

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

$$p < \frac{-56}{450} \quad \left(-0.12 \right)$$



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

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

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

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

$$3x-16x-12 \leq \boxed{16x-16x}+40$$

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

$$-13\cancel{12+12} \leq 40+12$$

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

$$x \geq -4$$

$$x \geq -4$$

Your parents are celebrating their 25th wedding anniversary. They have compared the rates at two banquet halls. Fancy Feast charges \$200 for the hall plus \$30 per person. Beautiful Banquet charges \$400 for the hall plus \$20 per person.

a) Write a "let" statement.

Let "p" represent # of people

b) Write an expression for the cost of:

Beautiful Banquet $400 + 20p$

Fancy feast $200 + 30p$

c) How many people will have to attend to make company Beautiful Banquet less expensive than company Fancy Feast?

Beautiful Banquet < Fancy feast

$$400 + 20p < 200 + 30p$$

$$400 + 20p - 30p < 200 + 30p - 30p$$

$$400 - 10p < 200$$

$$400 - 400 - 10p < 200 - 400$$

$$-10p < -200$$

$$\frac{-10p}{-10} < \frac{-200}{-10}$$

$$p > 20$$



Homework

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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.