

September 8, 2011

7 pts total

Warm-Up:

Solve each:

1. $3m - 9 = 12$

$$\begin{array}{r} +9 \quad +9 \\ 3m = 21 \\ \hline 3 \quad 3 \end{array}$$

②

$$m = 7$$

2. $3x + 2 = 5x - 8$

$$\begin{array}{r} -3x \quad -3x \\ 2 = 2x - 8 \\ +8 \quad +8 \\ \hline 10 = 2x \\ \hline 5 = x \end{array}$$

②

3. $4(2b - 1) = 9 - 3b$

$$\begin{array}{r} 8b - 4 = 9 - 3b \\ +3b \quad +3b \end{array}$$

②

$$11b - 4 = 9$$

$$\begin{array}{r} +4 \quad +4 \\ \hline 11b = 13 \end{array}$$

$$b = \frac{13}{11}$$

4. What is the definition of a solution to a linear equation?

①

Homework Question

$$14) \frac{3V}{h} = \frac{1}{3} Ah \cdot \frac{3}{h}$$

$$\frac{3V}{h} = A$$

16)

$$S = L - rL$$

$$\frac{S}{1-r} = \frac{L(1-r)}{1-r}$$

$$\frac{S}{1-r} = L$$

9/7 - Solving Linear Inequalities

What is the definition of a solution to a linear inequality?

whatever makes the ~~statement~~ true
inequality

infinite # of answers

$n \rightarrow$

Which of the transformations can be used in solving a linear inequality while maintaining equivalence?

Transformations:

- ✓ 1. Add the same number to both sides
- ✓ 2. Subtract the same number from both sides
- ✗ 3. Multiply both sides by the same ^{positive} number
- ✗ 4. Divide both sides by the same ^{positive} number
- ✓ 5. Simplify one or both sides
- ✗ 6. Interchange sides

If you multiply both sides by a neg #, flip the inequality sign
or divide

If you interchange sides, flip the inequality sign

Solve and graph the answer on a numberline:

$$3x + 7 < 13$$

$$\begin{array}{r} -7 \\ -7 \end{array}$$

$$\frac{3x}{3} < \frac{6}{3}$$

$$x < 2$$



Solve and graph the answer on a numberline:

$$\begin{aligned}8a - 3 &\leq 23 - 5a \\+5a &\quad +5a \\13a - 3 &\leq 23 \\+3 &\quad +3 \\13a &\leq 26 \\ \frac{13a}{13} &= \frac{26}{13} \\a &\leq 2\end{aligned}$$



Solve and graph the answer on a numberline:

$$\begin{aligned} 4 &\leq 4x - 12 < 16 \\ +12 \quad +12 \quad +12 \\ \frac{16}{4} &\leq \frac{4x}{4} < \frac{28}{4} \\ 4 &\leq x < 7 \end{aligned}$$

3-part inequalities are called:

--> Conjunctions

--> "And" statements

**All 3 parts MUST be worked at the same time! **



Solve and graph the answer on a numberline:

$$\begin{aligned} -8 < 7 - 3x < 10 \\ -7 \quad -7 \quad -7 \\ -15 < -3x < 3 \\ \frac{-15}{-3} < \frac{-3x}{-3} < \frac{3}{-3} \\ 5 > x > -1 \end{aligned}$$



$$-1 < x < 5$$

flip it around
to fit the \neq line

Solve and graph the answer on a numberline:

$$\begin{array}{l} 5 - 9x < 14 \quad \text{or} \quad -4x - 17 > 3 \\ -5 \quad -5 \quad \quad \quad +17 \quad +17 \\ \hline -9x < 9 \quad \quad \quad -4x > 20 \\ \hline -x < 1 \quad \quad \quad -x > 5 \\ \hline x > -1 \quad \quad \quad x < -5 \end{array}$$

$$\boxed{x > -1 \quad \text{or} \quad x < -5}$$

Inequalities that have 2 sections separated by the word "or" are called:
--> ~~Disjunctions~~ **Disjunctions**
--> "or" statements

Both parts must be worked separately but graphed together.



to be continued on Friday ...

Solve and graph the answer on a numberline:

$$2n - 3 \geq 9 \text{ or } 5 - n < 4$$

Homework:

page 41
#21-38 all

Due tomorrow