

I can: Solve inequalities  
Use Interval Notation  
Use the Addition Principle for Inequalities  
Use the Multiplication Principle for Inequalities  
Use the Principles together

# 4.1 and 4.2

$$x + 3 < 6$$

~~-3~~   ~~-3~~

$$\boxed{x < 3}$$

$$4x - 1 > 5x - 2$$

~~-5x~~   ~~-5x~~

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$$-x - 1 > -2$$

~~+1~~   ~~+1~~

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$$-x > -1$$

~~-1~~   ~~-1~~

$$\boxed{x < 1}$$

$$\frac{-5x}{-5} \leq \frac{80}{-5}$$

$$x \leq -16$$

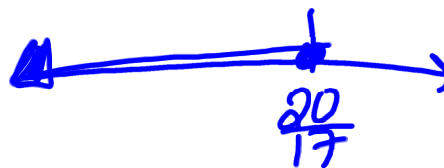


$$\frac{16 - 7y}{-10y} \geq \frac{10y - 4}{-10y}$$

$$\frac{16 - 17y}{-16} \geq \frac{-4}{-16}$$

$$\frac{-17y}{-17} \leq \frac{-20}{-17}$$

$$y \leq \frac{20}{17}$$



$$f(x) = \underline{-3(x+8) - 5x} \quad \text{and} \quad g(x) = 4x - 9$$

Find where  $f(x) > g(x)$

$$-3(x+8) - 5x > 4x - 9$$

$$-3x - 24 - 5x > 4x - 9$$

$$\begin{array}{r} -8x - 24 > 4x - 9 \\ -4x \quad \quad -4x \end{array}$$

$$\begin{array}{r} -12x - 24 > -9 \\ +24 \quad +24 \end{array}$$

$$\begin{array}{r} -12x < 15 \\ -12 \quad -12 \end{array}$$

$$x < -\frac{5}{4}$$

$$\begin{array}{c} [ ] \\ ( ) \end{array} \quad \longleftrightarrow \quad \begin{array}{c} ] \\ [ \end{array}$$

$$(-\infty, 2]$$

$$2 < x \leq 4$$

$$\begin{array}{c} \leftarrow \quad \quad \quad \rightarrow \\ | \quad \quad \quad | \\ 2 \quad \quad \quad 4 \\ (2, 4] \end{array}$$

I can: Find the union and intersections of sets

Use interval notation and domains to demonstrate mastery

4.2



When two or more sentences are joined by the word AND to make a compound sentence the new sentence is called a **conjunction**

$$-2 < x \text{ and } x < 1$$

Graph and write interval notation for the conjunction

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Solve and graph  $-1 \leq 2x + 5 < 13$



When  $A \cap B = \emptyset$  then A and B are said to be Disjoint

The union of two sets  $A$  and  $B$  is the collection of elements belonging to  $A$  and/or  $B$

$A \cup B$

Find the union  $\{2,3,4\} \cup \{3,5,7\}$

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Solve and graph

$$7 + 3x \leq 3 \quad \text{or} \quad 13 - 5x < 3$$

$$3x - 11 < 4 \text{ or } 4x + 9 \geq 1$$