

Solving Compound "AND" Inequalities

Clear Learning Target

You will be able to solve and graph compound inequalities involving an "and" relationship

Words Worth Knowing!

Compound inequality -

two inequalities which are considered together

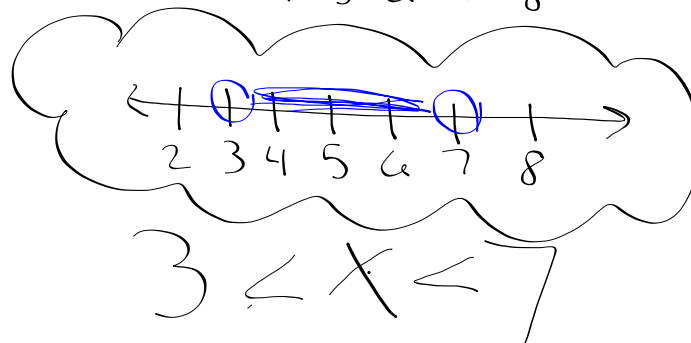
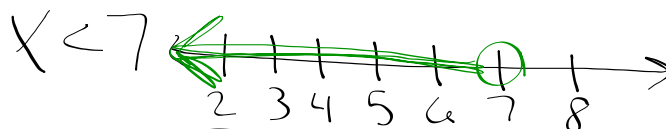
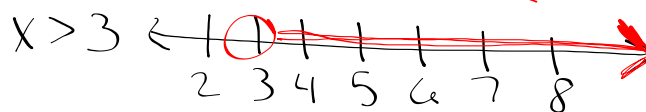
intersection - where the graphs of 2 inequalities overlap

Example #1: Graph and rewrite the inequality.

$$x > 3 \text{ and } x < 7$$

graph 1st graph 2nd

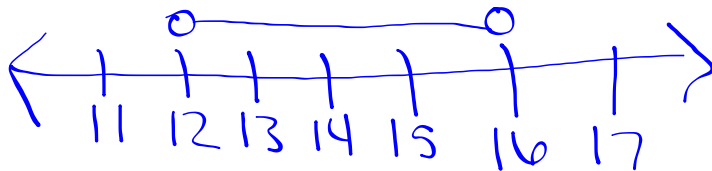
$$3 < x \quad x < 7$$



You Try! Graph and rewrite the inequality.

$$12 < p \text{ and } p < 16$$

$$12 < p < 16$$

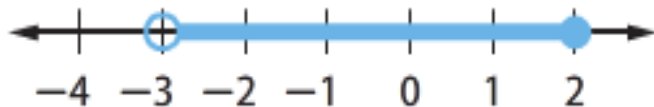


Example #2: Write a compound inequality for the given graph.



$$-1 \leq x \leq 4$$

You Try! Write a compound inequality for the given graph.



$$-3 < x \leq 2$$

Example #3: Solve the inequality.

$$\begin{array}{ccc} -2 < x & -3 < 4 \\ +3 & +3 & +3 \end{array}$$

$$1 < x < 7$$

Example #4: Solve the inequality.

$$y - 3 > -11 \text{ and } y - 3 < -8$$

** solve each inequality separately, then combine!*

$$\begin{array}{r} y - 3 > -11 \\ +3 \quad +3 \end{array}$$

$$y > -8$$

$$\begin{array}{r} y - 3 < -8 \\ +3 \quad +3 \end{array}$$

$$y < -5$$

$$\boxed{-8 < y < -5}$$

You Try! Solve. $6 < r + 7 < 10$

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

$$\boxed{-1 < r < 3}$$

Ex #5:

$$\begin{array}{r} 6 < -2r < 10 \\ \hline -2 \quad -2 \quad -2 \end{array}$$

$$-3 > r > -5$$

$$-5 < r < -3$$