

1.6: Solving Inequalities

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Ex 1: Graph the inequality

$$6 \geq x \rightarrow x \leq 6$$

6 is greater than or equal to x.



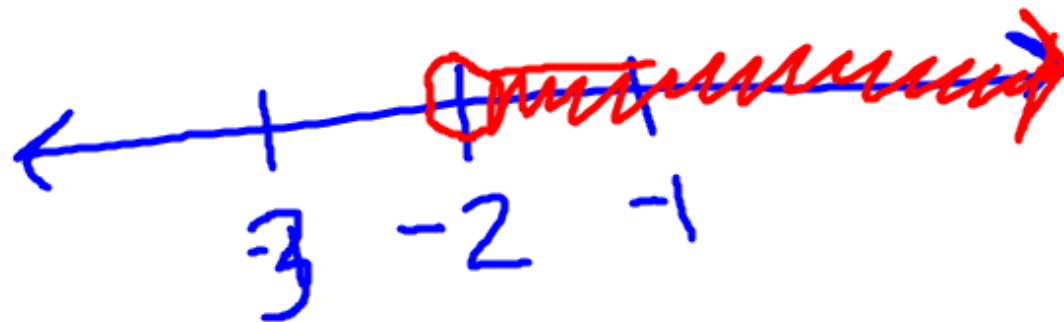
Open: not equal to $<, >$

Closed: equal to \leq, \geq

#8: Graph the inequality

$$-2 < x$$

$$x \rightarrow -2$$



#25: Solve the inequality. Then graph the solution.

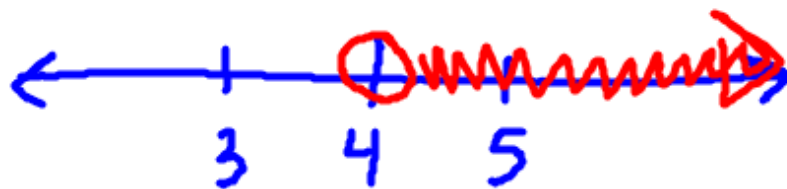
$$15 - 3x < 3$$

-15 -15

★
When you
÷ by a negative
you switch
the inequality
sign

$$\frac{-3x}{-3} < \frac{-12}{-3}$$

$$x > 4$$



EX 4: Solve the inequality. Then graph the solution.

$$18 + 2x \leq 9x + 4$$

$$\begin{array}{r} -9x \quad -9x \\ 18 + 2x \leq 9x + 4 \end{array}$$

$$\begin{array}{r} 18 - 7x \leq 4 \\ -18 \quad -18 \end{array}$$

$$\begin{array}{r} -7x \leq -14 \\ \frac{-7x}{-7} \leq \frac{-14}{-7} \end{array}$$

$$\boxed{x \geq 2}$$



#40: Solve the inequality. Then graph the solution.

$$2 < 3x - 1 \leq 6$$

$$\begin{array}{r} 2 < 3x - 1 \\ +1 \quad \quad +1 \end{array}$$

and

$$\begin{array}{r} 3x - 1 \leq 6 \\ +1 \quad +1 \end{array}$$

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

$$1 < x$$

$$\frac{3x}{3} \leq \frac{7}{3}$$

$$x \leq 2\frac{1}{3}$$

and

$$1 < x \leq 2\frac{1}{3}$$

$$1 < x \leq 2\frac{1}{3}$$



"And" inequality
you shade in the
middle

#46: Solve the inequality. Then graph the solution.

$$2 + 3x < -13 \quad \underline{\text{or}} \quad 4 + 2x > 7$$

-2 -2 -4 -4

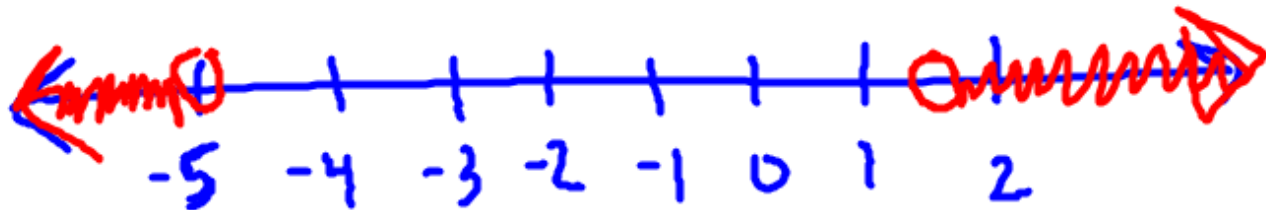
$$\frac{3x}{3} < \frac{-15}{3}$$

$$x < -5$$

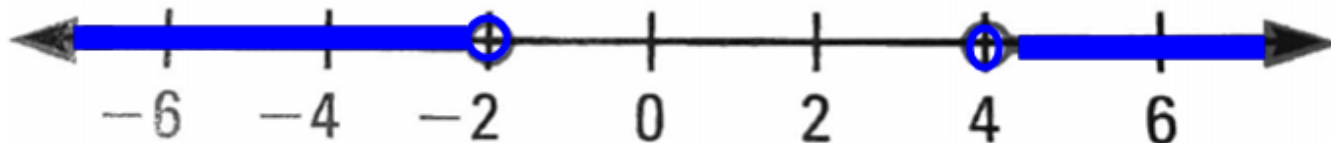
or

$$\frac{2x}{2} > \frac{3}{2}$$

$$x > 1.5$$



Ex 7: Write the compound inequality that is represented by the graph.



Ex 8: Write the compound inequality that is represented by the graph.

