

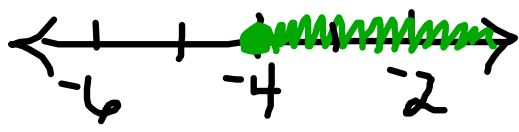
Chapter 6.1 and 6.2 Inequalities

Statements of Inequality	
a is less than b .	$a < b$
a is greater than b .	$a > b$
a is less than or equal to b (or a is at most b).	$a \leq b$
a is greater than or equal to b (or a is at least b).	$a \geq b$
a is greater than b and less than c .	$b < a < c$
a is greater than or equal to b and less than or equal to c .	$b \leq a \leq c$
a is not equal to b .	$a \neq b$

$$\begin{aligned} \textcircled{1} \quad m - 8 &\geq 2 \\ +8 \quad +8 & \\ \hline m &\geq 10 \end{aligned}$$



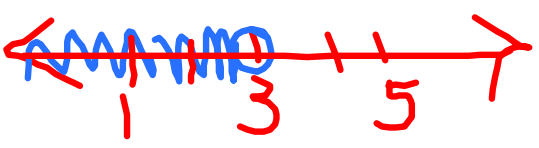
$$\begin{aligned} \textcircled{2} \quad h + 8 &\geq 4 \\ -8 \quad -8 & \\ \hline h &\geq -4 \end{aligned}$$



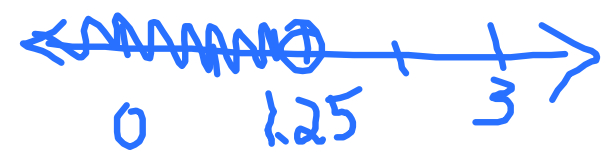
$$\begin{aligned} \textcircled{3} \quad 5 &> x - 3 \\ 8 &> x \quad \text{OR} \quad x < 8 \end{aligned}$$



$$\begin{aligned} \textcircled{4} \quad t - 5 &< -2 \\ t &< 3 \end{aligned}$$

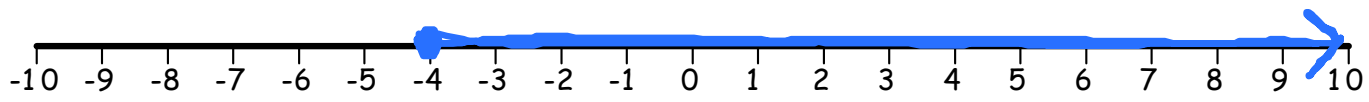


$$\begin{aligned} \textcircled{5} \quad .75 &> -5 + d \\ +.5 & \\ \hline 1.25 &> d \\ d &< 1.25 \end{aligned}$$

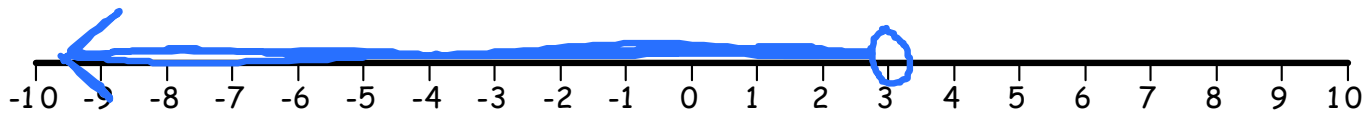


$$\begin{aligned} \textcircled{6} \quad x + \frac{2}{3} &\leq \frac{5}{9} \\ -\frac{2}{3} & \quad -\frac{2}{3} \quad -\frac{5}{9} \\ \hline x &\leq -\frac{1}{9} \end{aligned}$$

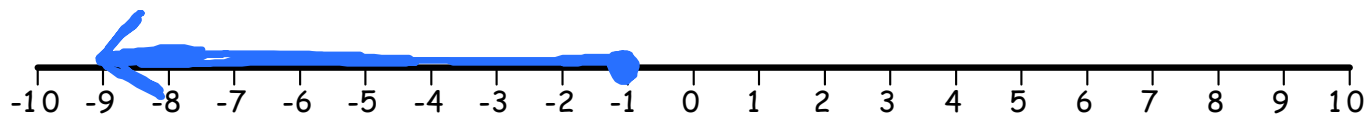




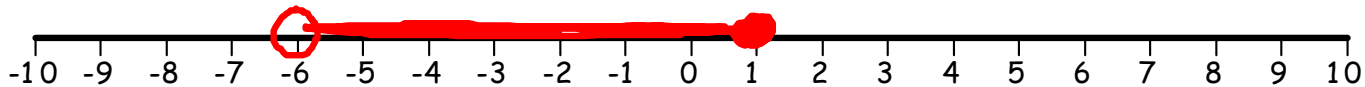
$$x \geq -4$$



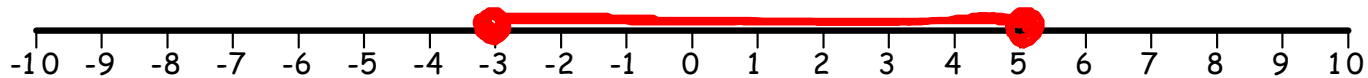
$$x < 3$$



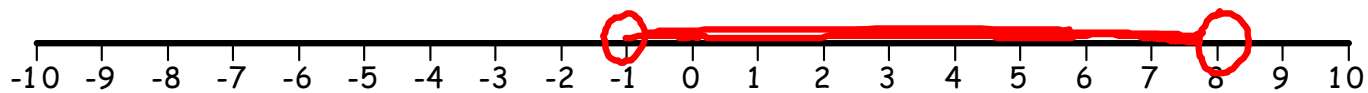
$$x \leq -1$$



$$-6 < x \leq 1$$



$$-3 \leq x \leq 5$$



$$-1 < x < 8$$

Chapter 6.2

Rules: When multiplying or dividing
by $-X \rightarrow$ flip the inequality sign.

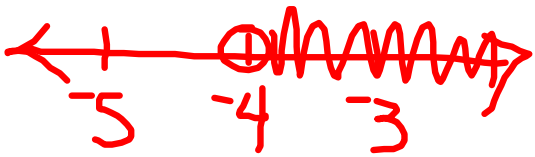
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$\leq \rightarrow \geq$ OR $> \rightarrow <$

Here's why...

$$\frac{-5x}{-5} > \frac{20}{-5}$$

$$x > -4$$



vs.

$$\frac{-5x}{-5} > \frac{20}{-5}$$

$$x < -4$$



$$\textcircled{1} 2b \geq 10$$
$$b \geq 5$$

$$\textcircled{2} \frac{u}{5} < 6$$
$$u > 30$$

$$\textcircled{3} 15 \leq -5x$$
$$-3 \geq x \text{ OR } x \leq -3$$

$$\textcircled{4} \begin{array}{r} 6x - 2 \geq 4 \\ +2 \quad +2 \\ \hline 6x \geq 6 \\ \frac{6x}{6} \geq \frac{6}{6} \\ x \geq 1 \end{array}$$

$$\textcircled{5} \begin{array}{r} -\frac{x}{5} + 4 < 1 \\ -4 \quad -4 \\ \hline -\frac{x}{5} < -3 \\ \frac{x}{5} > 3 \\ x > 15 \end{array}$$

$$\textcircled{6} 2m + 7(m-1) \geq 26$$
$$2m + 7m - 7 \geq 26$$
$$9m - 7 \geq 26$$
$$9m \geq 33$$
$$m \geq \frac{33}{9} = 3\frac{6}{9} \text{ OR } 3\frac{2}{3}$$

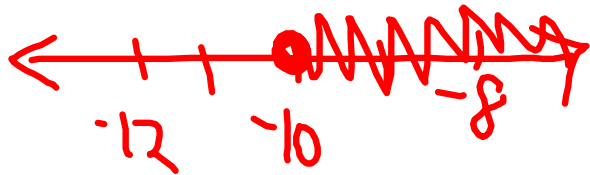
$$3x - (2 + 6x) \leq 28$$

$$3x - 2 - 6x \leq 28$$

$$\begin{array}{r} -3x - 2 \leq 28 \\ +2 \quad +2 \end{array}$$

$$\begin{array}{r} -3x \leq 30 \\ \frac{-3x}{-3} \leq \frac{30}{-3} \end{array}$$

$$x \geq -10$$



$$3p + 2 \leq 7p - 5$$

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

$$\begin{array}{r} -4p + 2 \leq -5 \\ -2 \quad -2 \end{array}$$

$$\begin{array}{r} -4p \leq -7 \\ \frac{-4p}{-4} \leq \frac{-7}{-4} \end{array}$$

$$p \geq \frac{7}{4} \text{ OR } \frac{3}{4}$$



Homework

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