

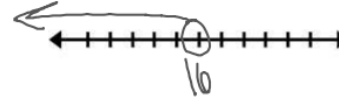
Warm Up: Solve and graph the following equations.

A. $\frac{1}{2}x + 8 < 16$

$$\frac{\frac{1}{2}x + 8}{\frac{1}{2} \quad \frac{1}{2}} < \frac{16}{\frac{1}{2} \quad \frac{1}{2}}$$

$$x + 16 < 32$$

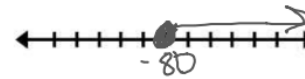
$$x < 16$$



B. $\frac{x}{5} + 12 \geq -4$

~~$$\frac{x}{5} \geq -16 \cdot 5$$~~

$$x \geq -80$$



C. $\frac{1}{2}(8x + 12) > 4x - 2$

$$4x + 6 > 4x - 2$$

$$6 > -2$$



ARN

$$x \geq -3$$

$$-3 \leq x$$

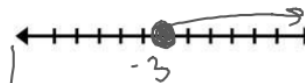
D. $-2(4x + 8) + 2x \leq \frac{1}{3}(3x + 15)$

$$\begin{array}{r} -8x - 16 + 2x \leq x + 5 \\ -6x - 16 \leq x + 5 \\ +6x \qquad +6x \end{array}$$

$$\frac{-16 \leq 7x + 5}{-5 \qquad -5}$$

$$\frac{-21 \leq 7x}{7 \qquad 7}$$

$$-3 \leq x$$



$$\begin{array}{r} -6x - 16 \leq x + 5 \\ -x \qquad -x \end{array}$$

$$\frac{-7x - 16 \leq 5}{+16 \quad +16}$$

$$\frac{-7x \leq 21}{-7 \quad -7}$$

$$x \geq -3$$

Compound Inequalities:

Looking at 2 inequalities at the same time

$x > 0$ and $x < 10$

$x < 0$ or $x > 10$

	AND	OR
5	Both inequalities are true	Only one inequality is true
7		
3		
8		

Example 1: Write each compound inequality without using AND.

A. $x > 7$ and $x \leq 15$

$7 < x \leq 15$

B. $g \geq -4$ and $g \leq 0$

$-4 \leq g \leq 0$

Example 2: Solve and graph each inequality.

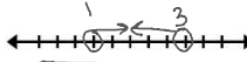
A. $x + 1 \leq -3$ or $-4x < -8$

$$\begin{array}{r} x + 1 \leq -3 \\ -1 \quad -1 \\ \hline x \leq -4 \end{array} \quad \begin{array}{r} -4x < -8 \\ -4 \quad -4 \\ \hline x > 2 \end{array}$$

$x \leq -4$ OR $x > 2$

B. $\frac{2}{2} < \frac{2x}{2} < \frac{6}{2}$ | is less than x
2

$1 < x < 3$




$1 < x$ $x < 3$

C. $-33 \leq -7t - 12 < -26$
 $+12$ $+12$ $+12$

$-21 \leq -7t < -14$
 -7 -7 -7

$3 \geq t > 2$

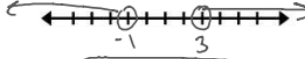


$2 < t \leq 3$

D. $9 + 2h < 7$ or $7 - 5h < -8$
 -9 -9 -7 -7

$\frac{2h}{2} < \frac{-2}{2}$ $\frac{-5h}{-5} < \frac{-15}{-5}$

$h < -1$ $h > 3$

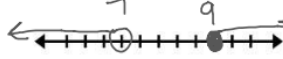


$h < -1$ or $h > 3$

E. $2x - 3 < 11$ or $-8x - 10 \leq -82$
 $+3$ $+3$ $+10$ $+10$

$\frac{2x}{2} < \frac{14}{2}$ $\frac{-8x}{-8} \leq \frac{-72}{-8}$

$x < 7$ $x \geq 9$



$x < 7$ or $x \geq 9$

F. $36 \leq 11 - 5x \leq 66$
 -11 -11 -11

$\frac{25}{-5} \leq \frac{-5x}{-5} \leq \frac{55}{-5}$

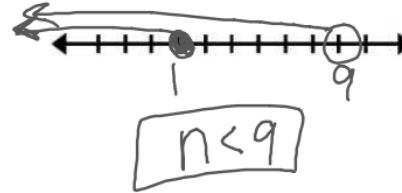
$-5 \geq x \geq -11$



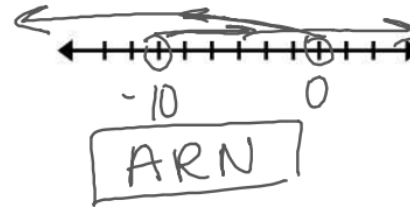
$-11 \leq x \leq -5$

$$\text{G. } \begin{array}{l} -6+n < 3 \text{ or } n-10 \leq -9 \\ +6 \quad +6 \quad +10 \quad +10 \end{array}$$

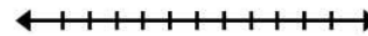
$$n < 9 \quad n \leq 1$$



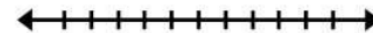
$$\text{H. } \begin{array}{l} \frac{6v}{6} > \frac{-60}{6} \text{ or } \frac{8v}{8} < 0 \cdot 8 \\ v > -10 \quad v < 0 \end{array}$$



$$\text{I. } 7x-1 \leq 62 \text{ or } 3+x \leq 9$$



$$\text{J. } 6-9k \leq 15 \text{ or } 10k-2 > 78$$



$$\text{K. } -5-9r > -50 \text{ or } 3+7r > -46$$

