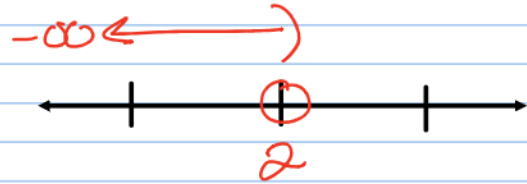


Daily Quiz

Solve, graph and write the interval notation for the following inequality.

$$3(x+2) < 12$$



$$\begin{array}{r} 3x + 6 < 12 \\ -6 \quad -6 \\ \hline \end{array}$$

$$D: (-\infty, 2)$$

$$\frac{3x}{3} < \frac{6}{3}$$

$$x < 2$$

Unit 1

A.CED.1

Solve Multi-Step Inequalities

Objective

Students will be able to solve, graph and justify inequalities in one variable.

End Point Summary	
Bracket End point	Parenthesis End point
[] ●	() ○
\geq	$>$
\leq	$<$
<u>Include</u> / True	<u>Don't Include</u> False

Steps to Solve an Inequality

1. Write the problem
2. *Solve the problem as though the inequality sign ($<$, $>$) is an equal sign*
3. Decide if the endpoint(s) is a bracket or parenthesis.
4. *Graph the solution on a number line using interval notation.*

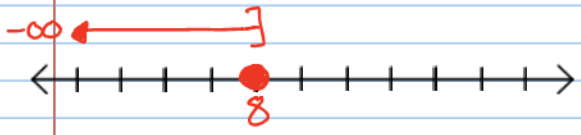
1 Example Solve, graph and write the interval notation.

A $-4x - 5x \leq 8 - 6x - 4x$

$$\begin{array}{r} -9x \leq 8 - 10x \\ 10x \quad +10x \\ \hline x \leq 8 \end{array}$$

less than or equal to (\leq)

Domain: $(-\infty, 8]$



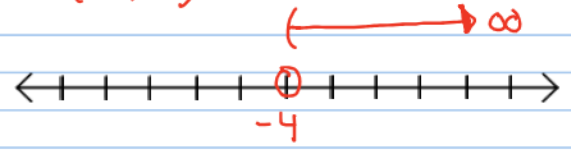
B $-3x + 8 > -7x - 8$

$$\begin{array}{r} +7x \quad +7x \\ -3x + 8 > -7x - 8 \\ \hline 4x + 8 > -8 \\ -8 \quad -8 \\ \hline 4x > -16 \end{array}$$

$$\frac{4x}{4} > \frac{-16}{4}$$

$x > -4$
greater than ($>$)

D: $(-4, \infty)$

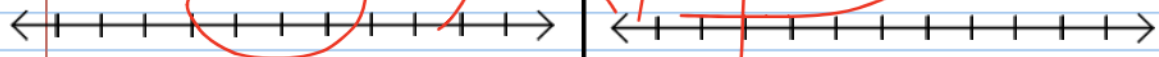


2 Example Solve, graph and write the interval notation.

A $5(7x + 6) \leq -180$

B $4(4x - 6) > 104$

SKIP



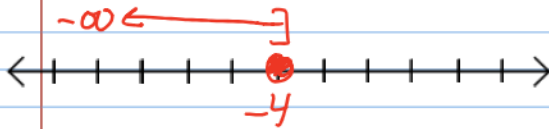
3 Example Solve, graph and write the interval notation.

A $-15 - 5x + x \geq -2x - 7$

$$\begin{array}{r} -15 - 4x \geq -2x - 7 \\ +2x \quad +2x \\ \hline -15 - 2x \geq -7 \\ +15 \quad +15 \end{array}$$

$$\begin{array}{r} -2x \geq 8 \\ -2 \downarrow -2 \\ x \leq -4 \end{array}$$

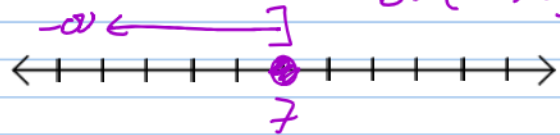
D: $(-\infty, -4]$



B $1 + 4x \geq -13 + 6x$

$$\begin{array}{r} 1 + 4x \geq -13 + 6x \\ -1 \quad -1 \\ \hline 4x \geq -14 + 6x \\ -6x \quad -6x \\ \hline -2x \geq -14 \\ -2 \downarrow -2 \\ x \leq 7 \end{array}$$

D: $(-\infty, 7]$



4 Example

Solve and write the interval notation Domain:

$$9(5t - 20) + 5t < -75$$

$$45t - 180 + 5t < -75$$

$$\begin{array}{r} 50t - 180 < -75 \\ +180 \quad +180 \\ \hline \end{array}$$

$$\frac{50t}{50} < \frac{105}{50}$$

D: $(-\infty, 2.1)$

$$t < 2.1$$