

Linear Inequalities

$$5 \geq 4x + 2$$

$<$ \rightarrow less than

$>$ \rightarrow greater than

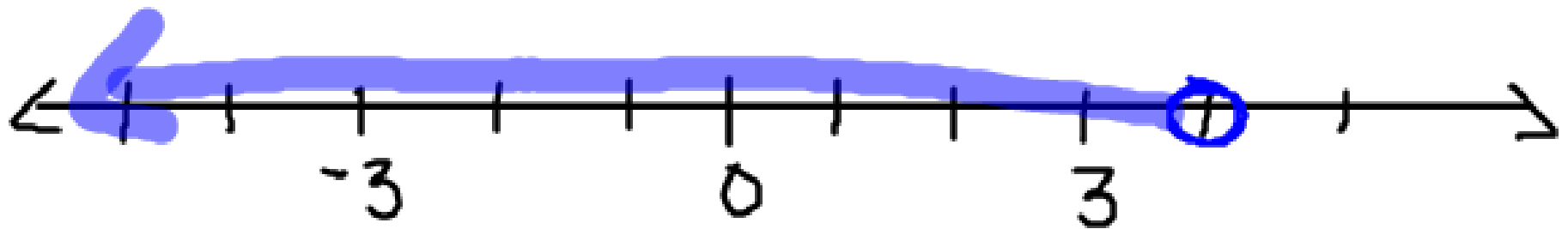
\leq \rightarrow less than or equal to

\geq \rightarrow greater than or equal to

$$\begin{array}{r} 5y - 8 < 12 \\ + 8 \quad + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5y < 20 \\ \hline 5 \end{array}$$

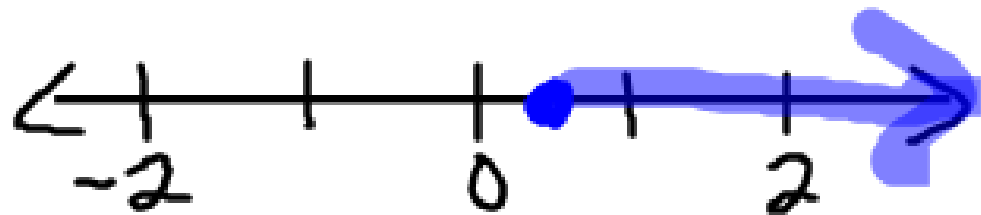
$$y < 4$$



$$\begin{array}{r} 2x + 1 \leq 6x - 1 \\ -2x \quad \quad -2x \\ \hline \end{array}$$

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

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



$$2x + 1 \leq 6x - 1$$

$-6x$

$-6x$

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

-1

-1

$$\frac{-4x}{-4} \leq \frac{-2}{-4}$$

$$x \geq \frac{1}{2}$$

If you multiply or divide by a negative you switch the inequality

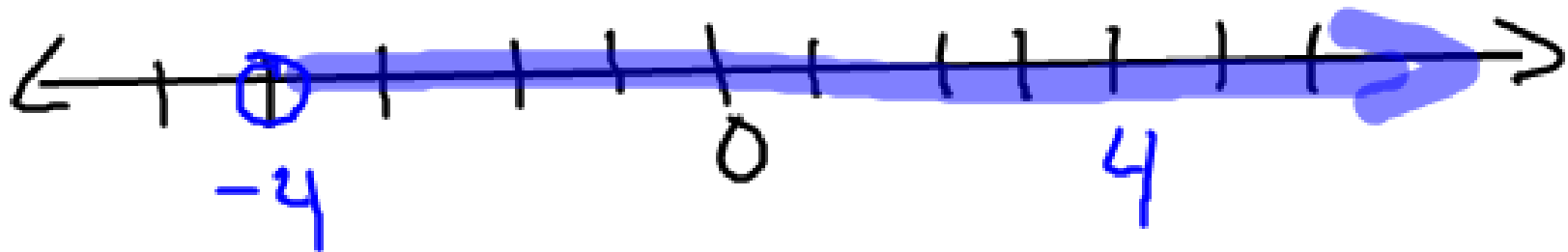
$$\frac{1}{2}x - 4 = -6$$

$$+4 \quad +4$$



$$\frac{\frac{1}{2}x}{\frac{1}{2}} = \frac{-2}{\frac{1}{2}}$$

$$x = -4$$



Check

$$2x + 9 < 16$$

a) $x = 4$ $17 < 16$ NO

b) $x = -3$ $3 < 16$ YES

c) $x = 0$ $9 < 16$ YES

Assignment

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SIMPLE INEQUALITIES Solve the inequality. Then graph your solution.

25. $4x + 5 > 25$

26. $7 - n \leq 19$

27. $5 - 2x \geq 27$

28. $\frac{1}{2}x - 4 > -6$

29. $\frac{3}{2}x - 7 < 2$

30. $5 + \frac{1}{3}n \leq 6$

31. $4x - 1 > 14 - x$

32. $-n + 6 < 7n + 4$

33. $4.7 - 2.1x > -7.9$

34. $2(n - 4) \leq 6$

35. $2(4 - x) > 8$

36. $5 - 5x > 4(3 - x)$