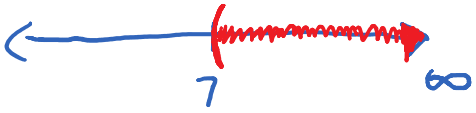
Interval Notation

Goal: to solve inequalities and write answers in interval notation.

ex Graph the solution set and write it in interval notation.

a) $y > 7$

7 not included in solution



$(7, \infty)$ interval notation

$> $ "greater than"

$< $ "less than"

$\geq$ "greater than or equal to"

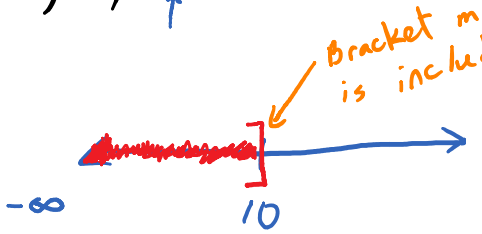
$\leq$ "less than or equal to"

set-builder notation

$\{y \mid y > 7\}$

b) $y \leq 10$

Bracket means 10 is included



$(-\infty, 10]$

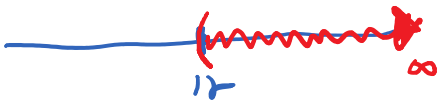
(ex) Solve. Write the answer in interval notation.

a) $\frac{3}{4}x - 2 > 7$

$+2 \quad +2$

$\frac{4}{3} \cdot \frac{3}{4}x > \frac{9}{1} \cdot \frac{4}{3}$

$x > 12$



$(12, \infty)$

b) $4(z-1)+2 \geq (3z+8) - 2z$

$4z - 4 + 2 \geq z + 8$

$4z - 2 \geq z + 8$

$-z \quad +2 \quad -z + 2$

$3z \geq 10$

$z \geq \frac{10}{3}$

$\left[\frac{10}{3}, \infty\right)$

c) $-5x+2 \geq 12$

$-5x \geq 10$

$\frac{-5x}{-5} \geq \frac{10}{-5}$

$x \leq -2$

$(-\infty, -2]$

$3 < 5$

$-3 > -5$