1 and 2-Step Inequalities

Words that indicate an inequality

$>$ greater than, more than	$<$ less than
$\geq$ greater than or equal to, at least	$\leq$ less than or equal to, at most

Solving an inequality

Treat just like an equation, but when you multiply or divide by a negative, you must switch the direction of the inequality.

Ex. 1 $\frac{8x}{8} < \frac{40}{8}$

$x < 5$

Ex. 2 $x - 5 \geq 20$

$+5 \quad +5$

$x \geq 25$

Ex. 3 $\frac{-4x}{-4} \leq \frac{12}{-4}$

$x \geq -3$

Ex. 4 $x + 7 > -2$

$-7 \quad -7$

$x > -9$

Ex. 5 $5 - x \geq 10$

$-5 \quad -5$

$-x \geq 5$

$\frac{-x}{-1} \geq \frac{5}{-1}$

$x \leq -5$

Ex. 6 $2x + 7 < -3$

$-7 \quad -7$

$\frac{2x}{2} < \frac{-10}{2}$

$x < -5$

Ex. 7 $-3\left(\frac{x+2}{-3}\right) \leq (4)(-3)$

$x + 2 \geq -12$

$-2 \quad -2$

$x \geq -14$

Ex. 8 $2\left(\frac{8-x}{2}\right) > (-3)2$

$8 - x > -6$

$-8 \quad -8$

$-x > -14$

Graphing an inequality

ENDPOINTS (depend on sign)

Solid dot (EQUAL TO): ≤ ≥ ●

Hollow dot (NOT EQUAL TO): > < ○

TEST A POINT ON ONE SIDE OF THE ENDPOINT.

If it works, Shade on same side

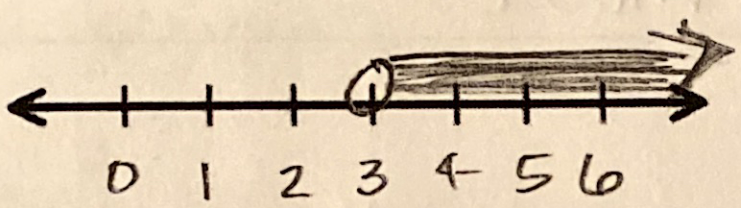
If it doesn't work, Shade on opposite side

SHADED REGION =

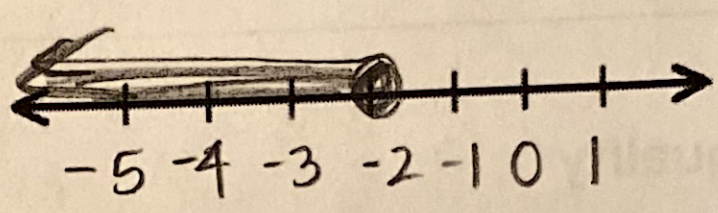
ALL possible answers for the inequality

1 and 2-Step Inequalities

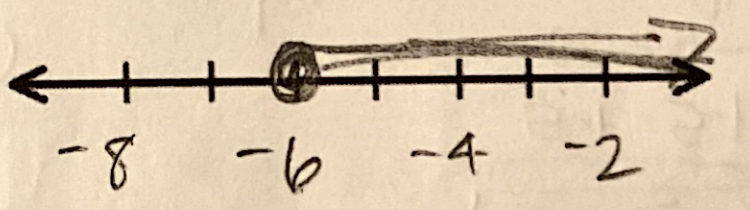
Ex. 1 $x > 3$



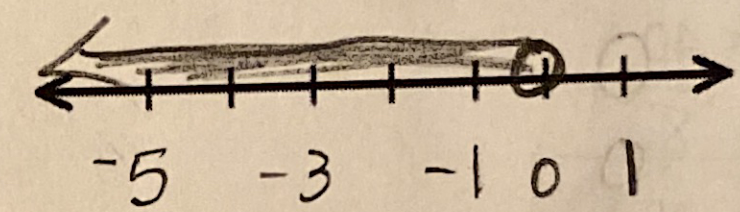
Ex. 2 $x \leq -2$



Ex. 3 $x \geq -6$

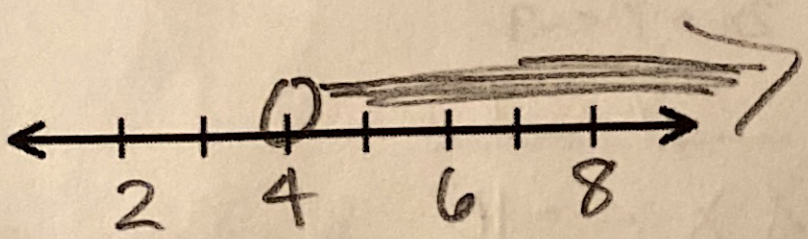


Ex. 4 $x < 0$



Ex. 5 $\frac{-2x}{-2} < \frac{-8}{-2}$

$x > 4$

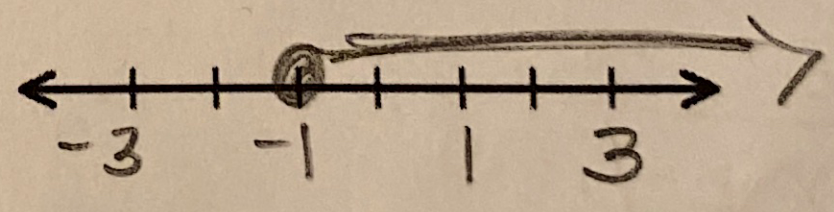


Ex. 6 $3x - 2 \geq -5$

$+2 \quad +2$

$\frac{3x}{3} \geq \frac{-3}{3}$

$x \geq -1$

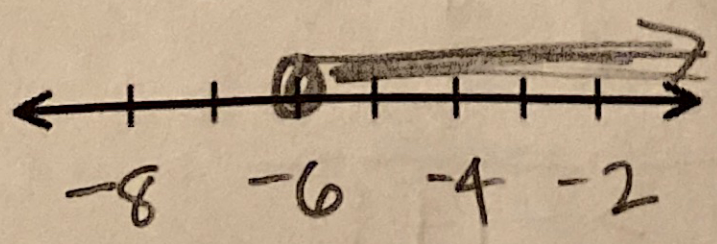


Ex. 7 $4 - 2x \leq 16$

$-4 \quad -4$

$\frac{-2x}{-2} \leq \frac{12}{-2}$

$x \geq -6$



Ex. 8 $5(x + 1) > -15$

$5x + 5 > -15$

$-5 \quad -5$

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

$x > -4$