

Solving quadratic inequalities warm-up (A2 3.7)

1. Solve the inequality: $2x^2 - 6x - 36 < 0$

$$\frac{2x^2 - 6x - 36}{2} < 0$$

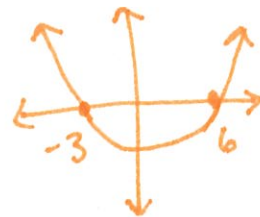
$$x^2 - 3x - 18 < 0$$

$$(x-6)(x+3) < 0 \rightarrow \text{roots: } -3, 6$$

x is between -3 and 6

$$-3 < x < 6$$

graph:



y is less than 0 when x is between -3 and 6

2. Solve the inequality: $2x^2 - 6x \geq 36$

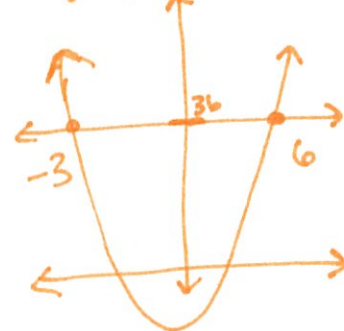
$$\frac{2x^2 - 6x - 36}{2} \geq \frac{0}{2}$$

$$x^2 - 3x - 18 \geq 0$$

$$(x-6)(x+3) \geq 0 \rightarrow \text{roots: } -3, 6$$

$$x \leq -3 \text{ or } x \geq 6$$

graph:



$2x^2 - 6x$ is greater than 36 when x is less than -3 and when x is greater than 6