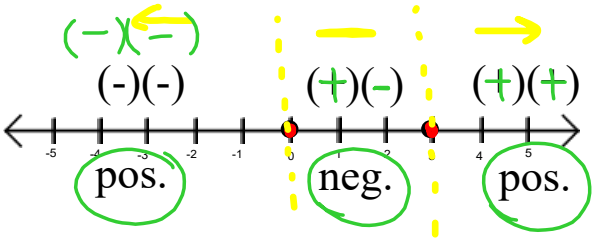
Solve the inequality. Then graph the solution set. (Sign chart method)

$3x^2 - 9x \geq 0$

$3x^2 - 9x = 0$ 1) Set equation equal to 0.

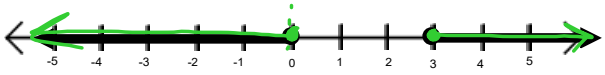
$3x(x - 3) = 0$ 2) Factor

$x = 0$ and $x = 3$ 3) Find the zeros



4) Graph on number line

5) Test values with sign chart



6) Write solution set

$(-\infty, 0] \cup [3, \infty)$

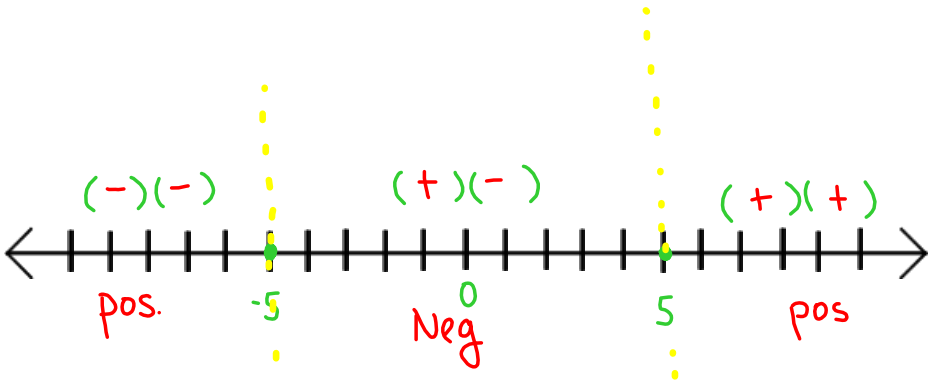
Solve the inequality. Then graph the solution set. (Sign chart method)

$x^2 \leq 25 \Rightarrow x^2 - 25 \leq 0$ Negative $[-5, 5]$

$x^2 - 25 = 0$

$(x+5)(x-5) = 0$

$x = -5, 5$



Solve the inequality. Then graph the solution set. (Sign chart method)

$(x - 3)^2 > 1$

$(x-3)^2 - 1 > 0$

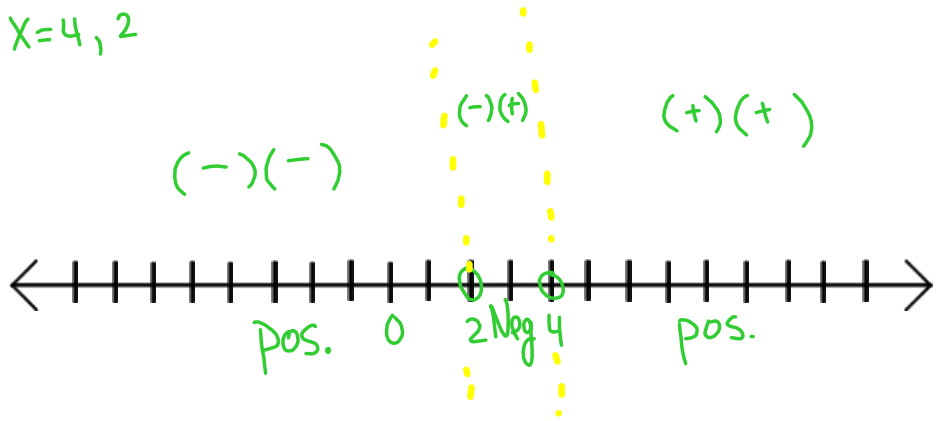
$x^2 - 6x + 9 - 1 = 0$

$x^2 - 6x + 8 = 0$

$(x - 4)(x - 2) = 0$

$x = 4, 2$

$(-\infty, 2) \cup (4, \infty)$



Solve the inequality. Then graph the solution set. (Sign chart method)

$-2x^2 + 6x \leq -15$

$-2x^2 + 6x + 15 \leq 0$

$-(2x^2 - 6x - 15) = 0$

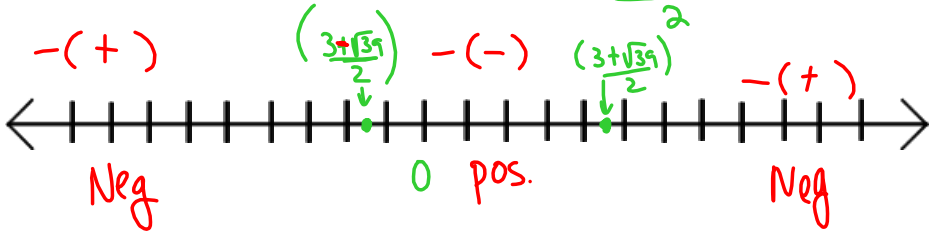
$x = \frac{6 \pm \sqrt{36 - 4(2)(-15)}}{2(2)}$

$x = \frac{6 \pm \sqrt{156}}{4} = \frac{6 \pm 2\sqrt{39}}{4} = \frac{3 \pm \sqrt{39}}{2}$

$\frac{3+\sqrt{39}}{2} \approx 4.6$

$\frac{3-\sqrt{39}}{2} \approx -1.6$

$(-\infty, \frac{3-\sqrt{39}}{2}] \cup [\frac{3+\sqrt{39}}{2}, \infty)$



Solve the inequality. Then graph the solution set. (Sign chart method)

$x^3 + 2x^2 - 4x < 8$

$(-\infty,-2)\cup(-2,2)$

$x^3+2x^2-4x-8<0$

$x^2(x+2)-4(x+2)=0$

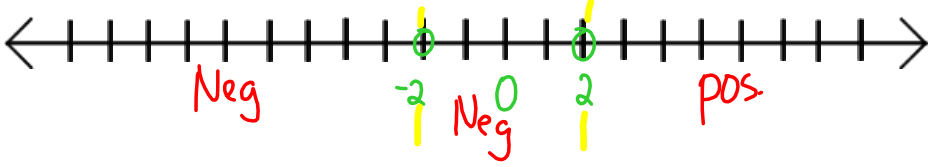
$(x+2)(x^2-4)=0$

$(x+2)(x-2)(x+2)=0$

$(x+2)^2(x-2)=0$

$x=-2,2$

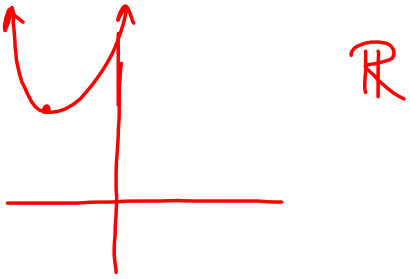
$(+)(-)$ $(+)(-)$ $(+)(+)$



Solve the inequality. Then graph the solution set. (Sign chart method)

$x^2 + 3x + 8 > 0$

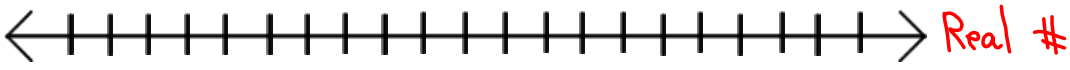
$x^2+3x+8=0$



$\mathbb{R}$

$x=\dfrac{-3\pm\sqrt{9-4(1)(8)}}{2(1)}$

$x=\dfrac{-3\pm\sqrt{-23}}{2}=\dfrac{-3\pm i\sqrt{23}}{2}$



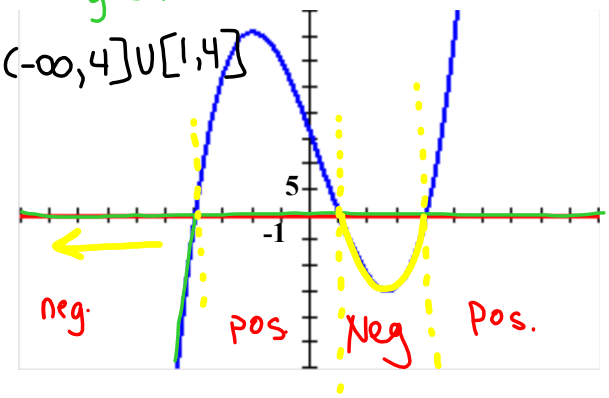
Use a graphing calculator to graph the equation. Use the graph to approximate the values of x that satisfy each inequality.

$y = x^3 - x^2 - 16x + 16$

a) $y \leq 0$

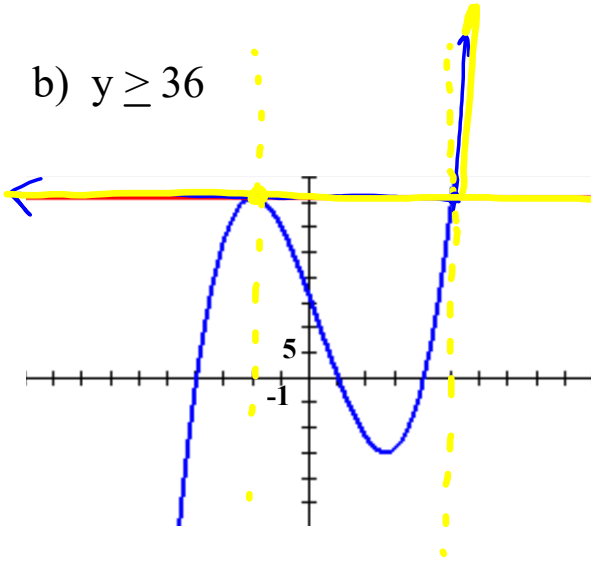
y below 0

$(-\infty, 4] \cup [1, 4]$



b) $y \geq 36$

$[-2] \cup [5, \infty)$

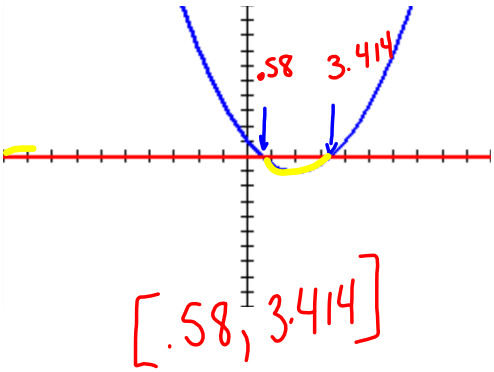


Use a graphing calculator to graph the equation. Use the graph to approximate the values of x that satisfy each inequality.

$y = \frac{1}{2}x^2 - 2x + 1$

a) $y \leq 0$

below

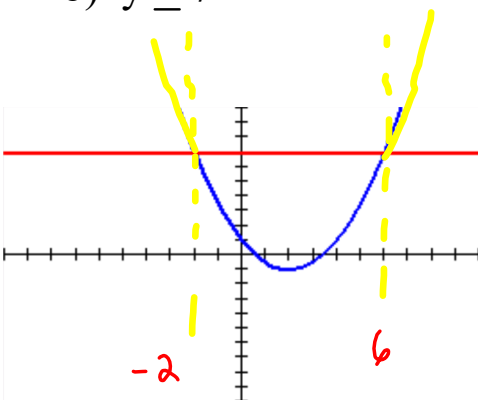


$[.58, 3.414]$

b) $y \geq 7$

above

$(-\infty, -2] \cup [6, \infty)$



Section 2.7A

Pg. 185-187: #13-39 odd, 53, 55