Solving <u>one variable</u> linear and quadratic.

a <u>single variable</u> inequality

eg. $4x - 3 < 0$ ← one side must be "0"

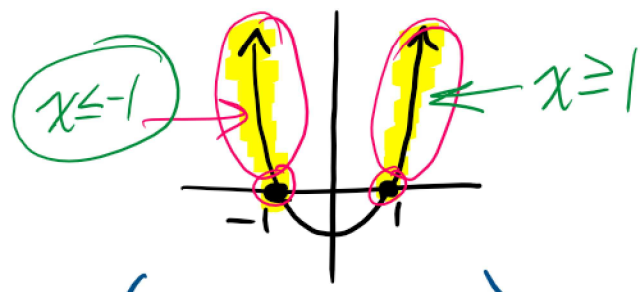
$x^2 - 2x + 5 \geq 0$

The solution of the inequality is an interval, a set of x values that make the inequality true.

The x <u>intercept(s)</u> are <u>critical values</u> to help determine the interval(s).

(*) [Basically looking where the graph is above or below x axis]

ex. 1 graph $y = x^2 - 1$



x-int $= -1, 1$

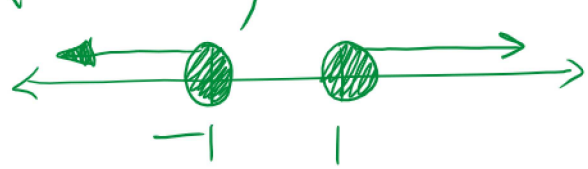
these are <u>critical numbers</u> because the graph changes signs $(y+, y-, y+)$

a) $x^2 - 1 \geq 0$

means, where the graph is <u>on</u> or <u>above</u> x axis

Solution $x \leq -1$, $x \geq 1$

graph the solution

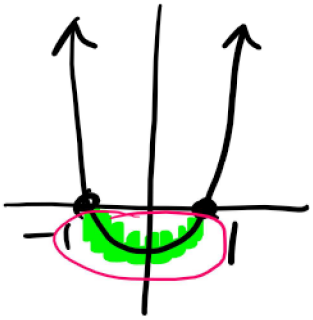


b) $x^2 - 1 < 0$

↑ | ↑

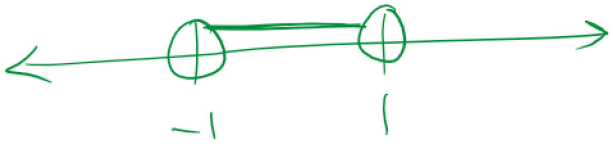
b) $x^2 - 1 < 0$

where is the graph below the x-axis



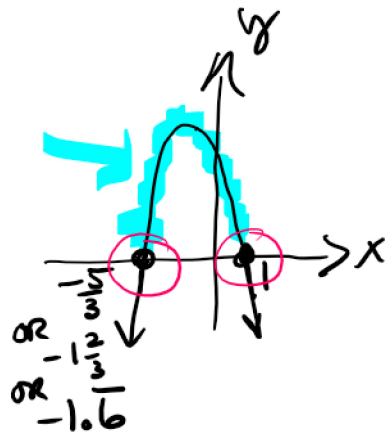
Solution between -1 and 1

$$-1 < x < 1$$



ex. 2 $y = -3x^2 - 2x + 5$

- graph - sketch
- x int. - plot, label

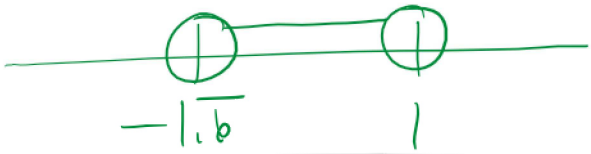


$-3x^2 - 2x + 5 > 0$

above x axis

Solution between $-1.\overline{6}$ and 1

$$-1.\overline{6} < x < 1$$



$\boxed{\text{p 356 \# 5, 9, 10, MC 1, 2}}$