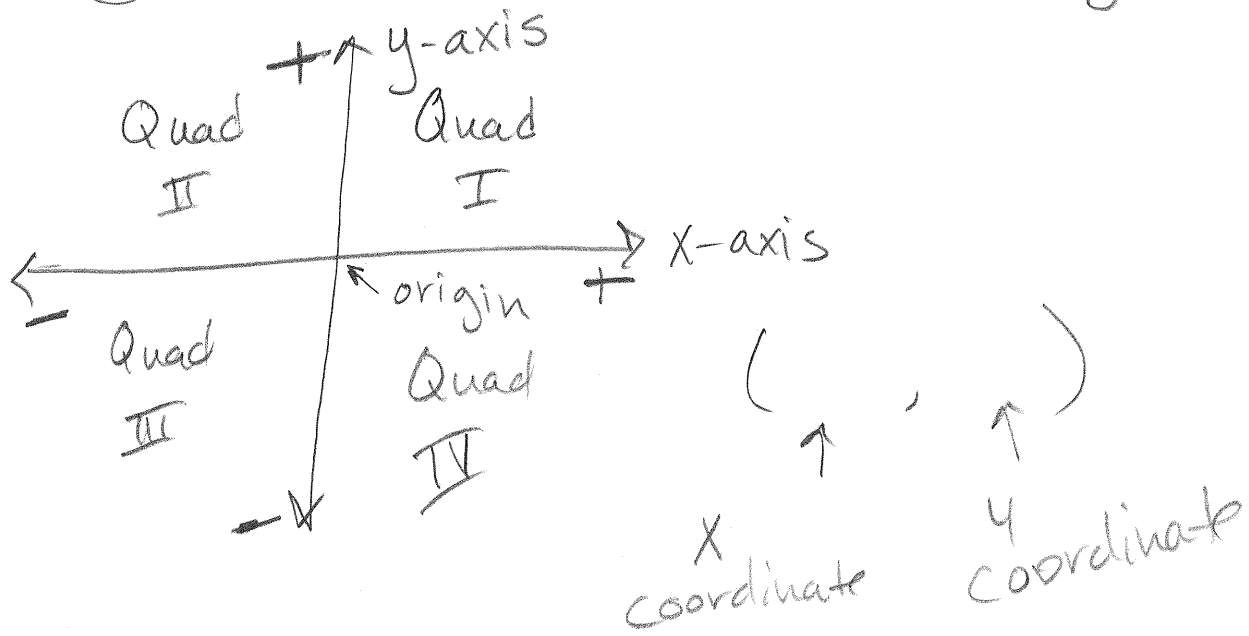
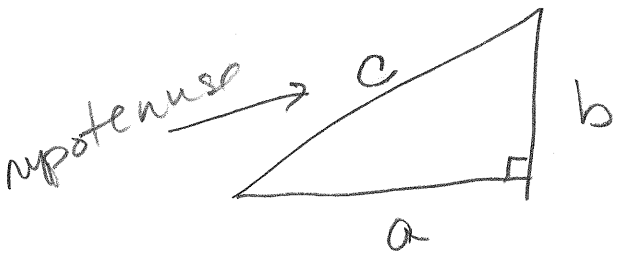
The Cartesian Coordinate System

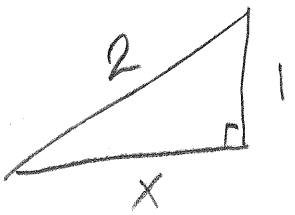


The Pythagorean Theorem

only for Right Triangles!

$a^2 + b^2 = c^2$





$x^2 + 1^2 = 2^2$

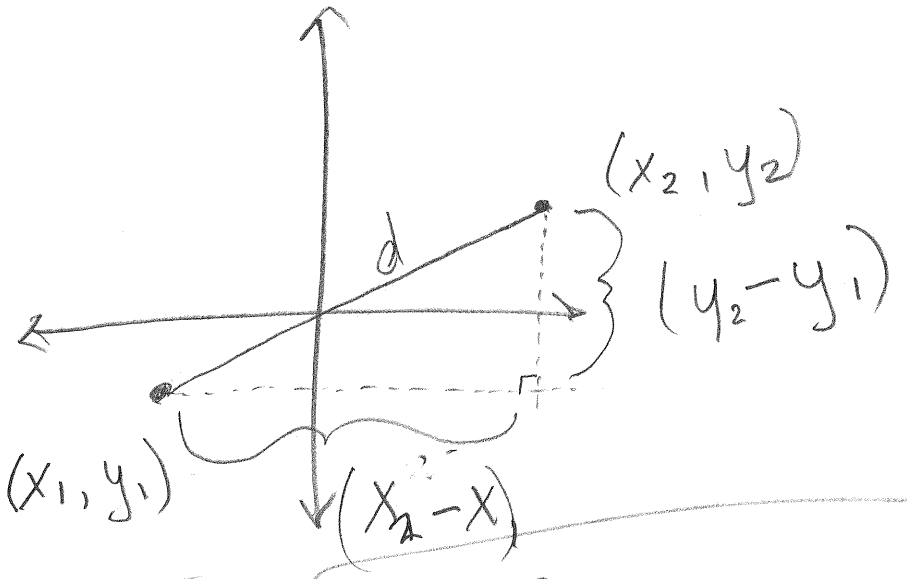
$x^2 + 1 = 4$

$-1 \quad -1$

$\sqrt{x^2} = \sqrt{3}$

$x = \pm\sqrt{3}$

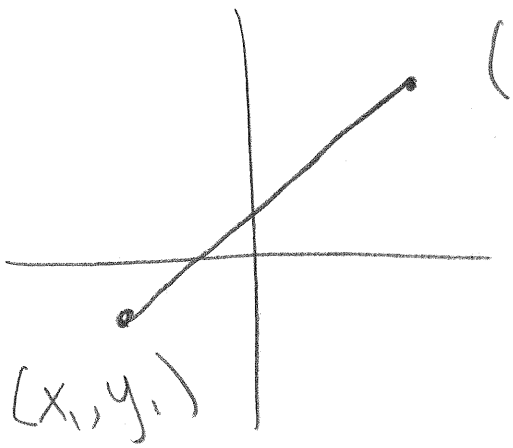
$$a^2 + b^2 = c^2$$



$$\sqrt{d^2} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Mid point



midpoint:

$$\left(\frac{x_1 + x_2}{2} , \frac{y_1 + y_2}{2} \right)$$

Circle

Defn: A circle is the set of all points in a plane that lie a fixed distance from a given point in the plane