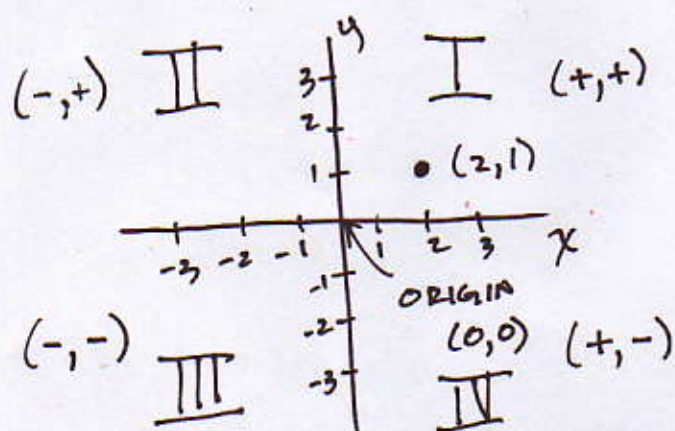


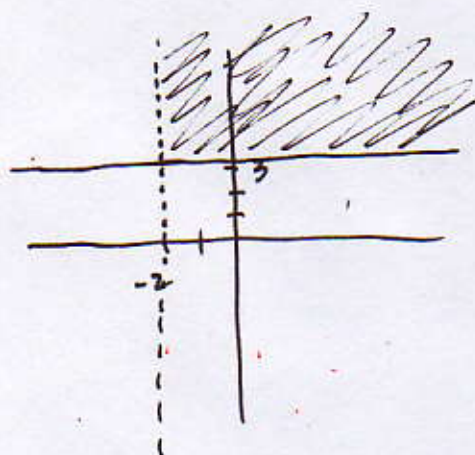
# SEC 2.1

## 1. COORDINATE SYSTEM

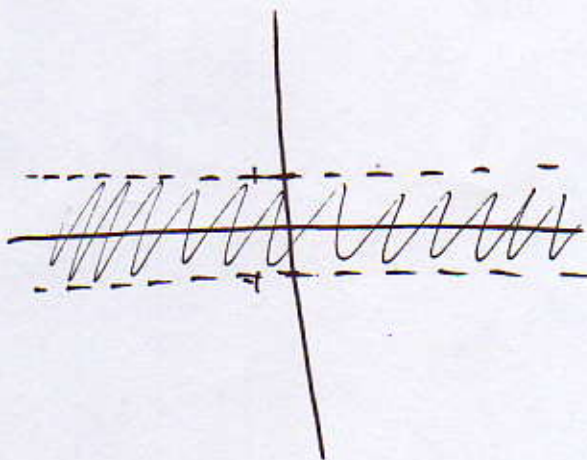
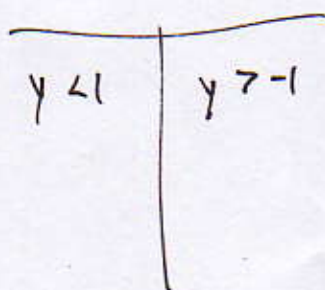


ORDERED PAIR  
(x,y)

$$\{ (x,y) \mid x > -2, y \geq 3 \}$$



$$\{ (x,y) \mid |y| < 1 \}$$



## 2. DISTANCE FORMULA :

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

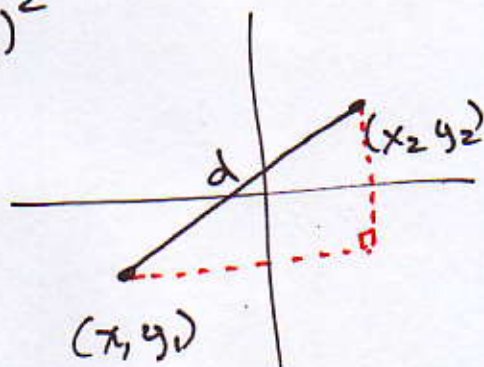
EXAMPLE

$$P(x_1, y_1) \quad Q(x_2, y_2)$$
$$P(1, -2) \quad Q(8, 9)$$

$$d = \sqrt{(8 - 1)^2 + (9 - (-2))^2}$$
$$7^2 + 11^2$$

$$49 + 121$$

$$d = \sqrt{170}$$



## 3. MIDPOINT FORMULA :

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

$$P(1, -2) \quad Q(8, 9)$$

$$\left( \frac{1 + 8}{2}, \frac{-2 + 9}{2} \right)$$

$$\boxed{\left( \frac{9}{2}, \frac{7}{2} \right)}$$