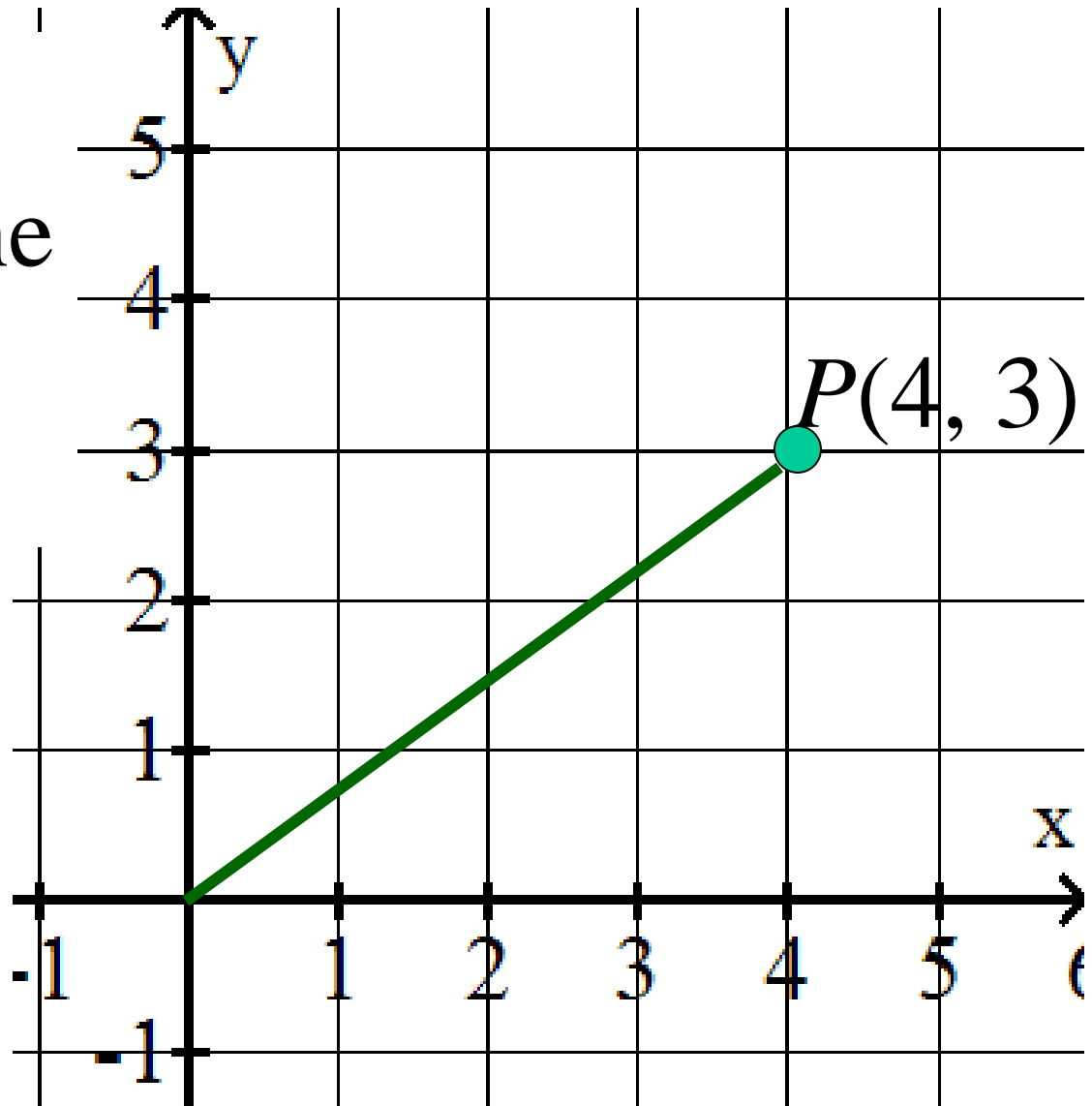


2.3 Distance from the Origin

Determine the distance from the origin to point $P(4, 3)$



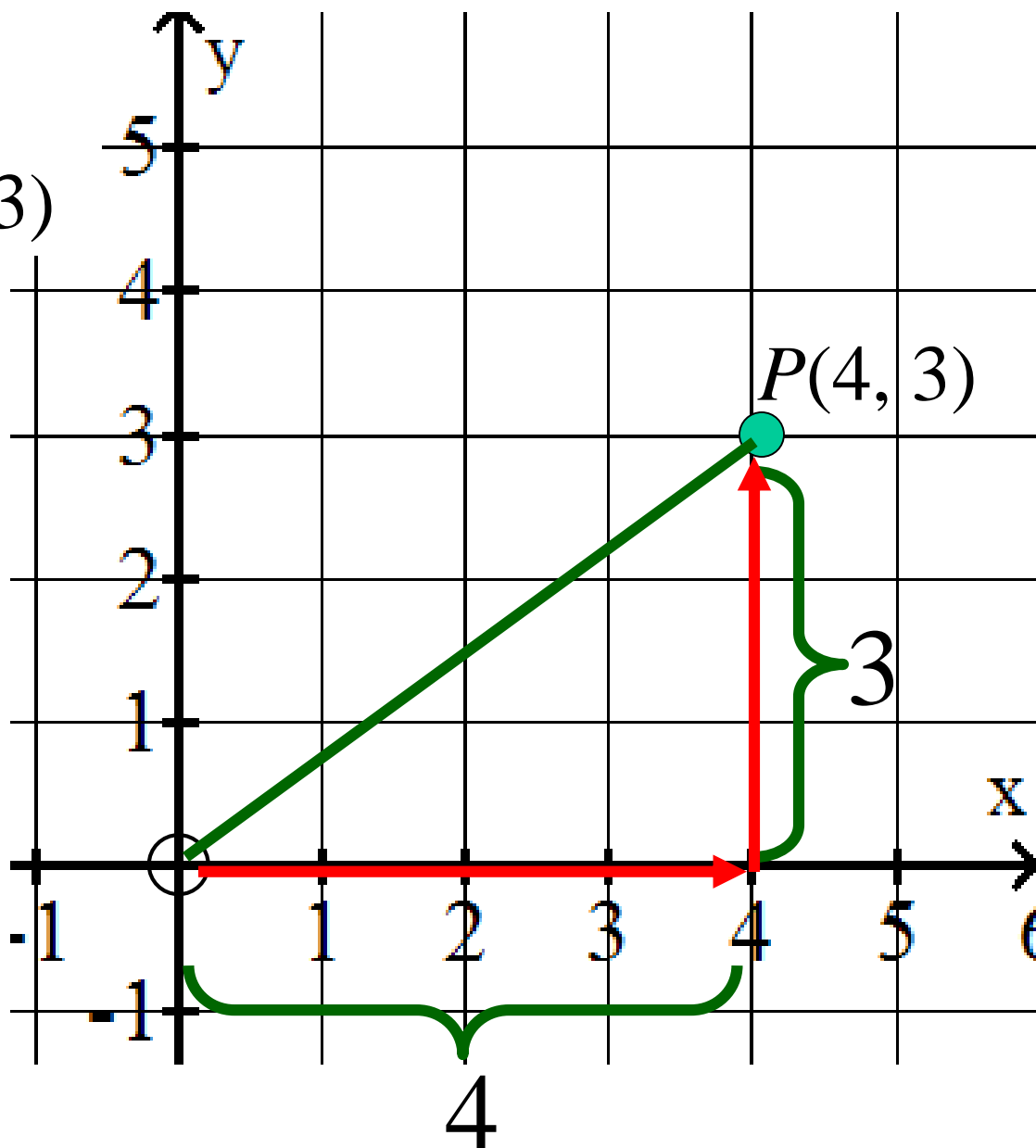
Determine the distance from the origin to point $P(4, 3)$

$$d = \sqrt{4^2 + 3^2}$$

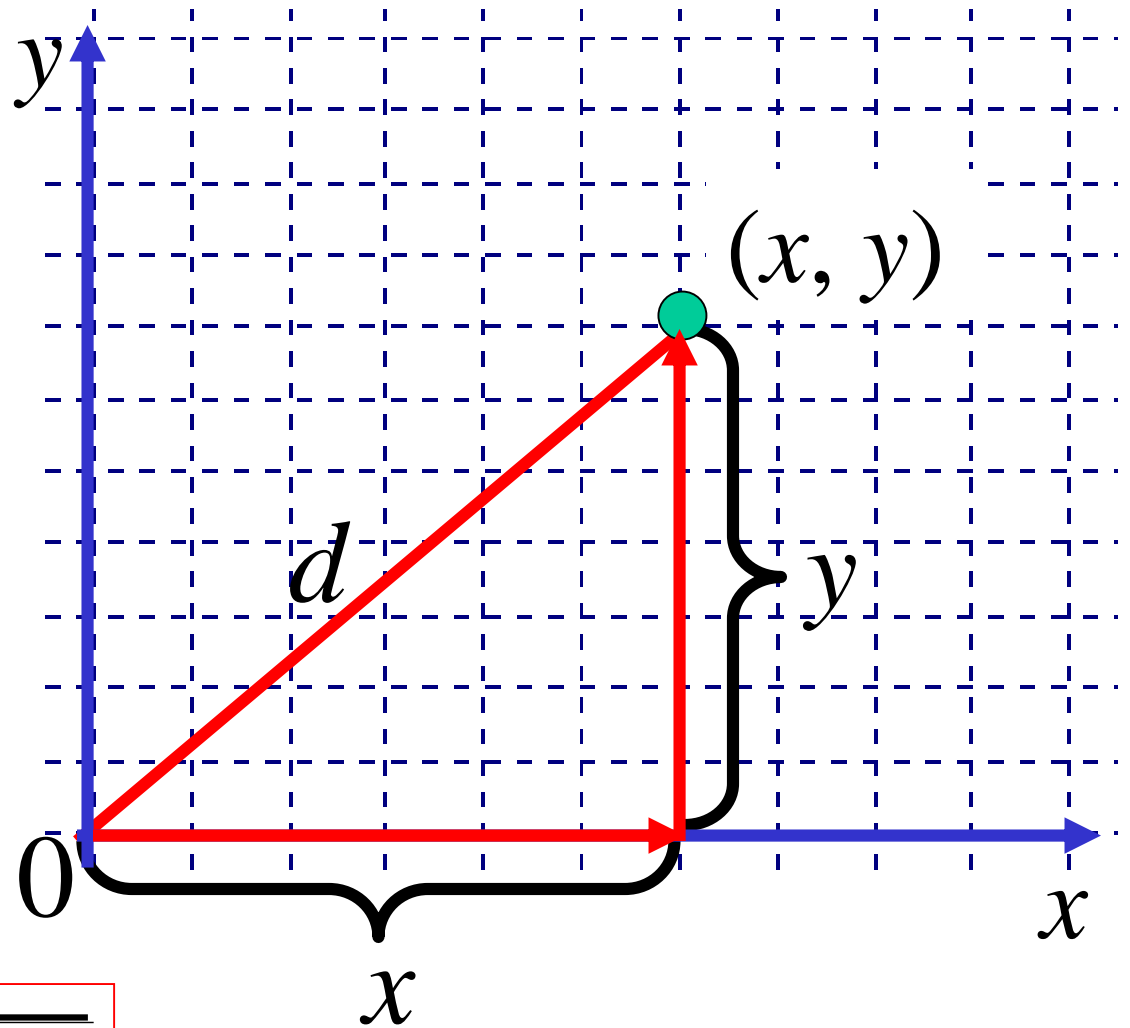
$$d = \sqrt{16 + 9}$$

$$d = \sqrt{25}$$

$$d = 5$$



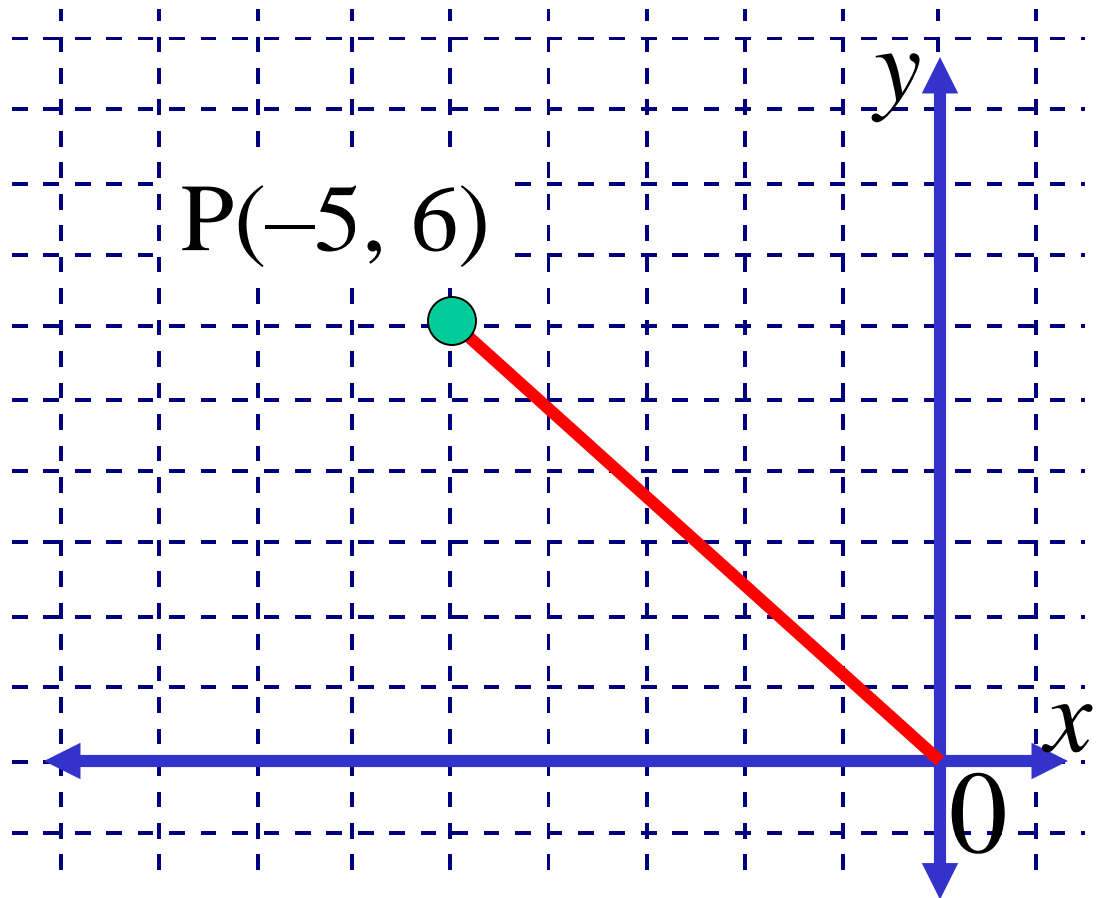
The distance from the origin to any point (x, y)



$$d = \sqrt{x^2 + y^2}$$

Example 1:

Determine the distance between the origin and point P(-5, 6).



$$d = \sqrt{x^2 + y^2}$$

$$d = \sqrt{(-5)^2 + (6)^2}$$

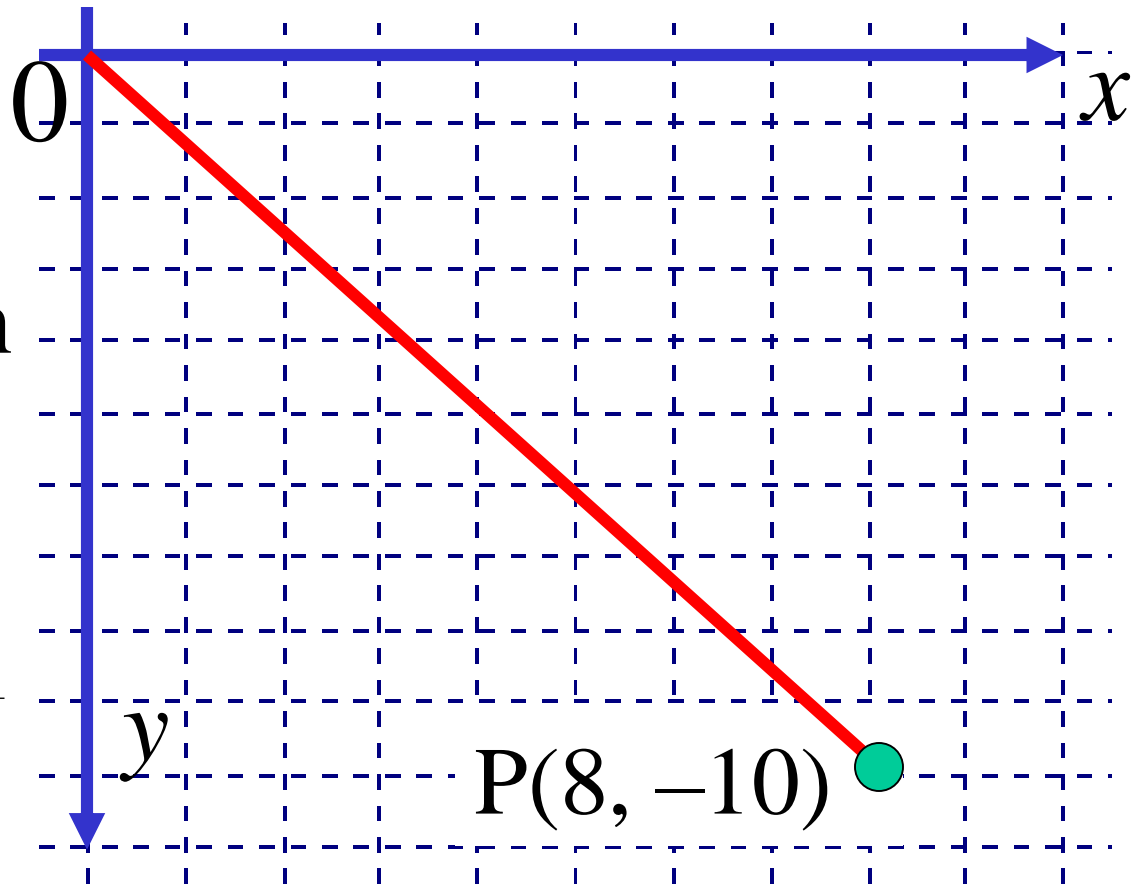
$$d = \sqrt{25 + 36}$$

$$d = \sqrt{61}$$

$$d \approx 7.8$$

Example 2:

Determine the distance between the origin and point P(8, -10).



$$d = \sqrt{x^2 + y^2}$$

$$d = \sqrt{(8)^2 + (-10)^2}$$

$$d = \sqrt{64 + 100}$$

$$d = \sqrt{164}$$

$$d \approx 12.8$$

Example 3:

Determine the perimeter of the triangle

$$P(7, -6)$$

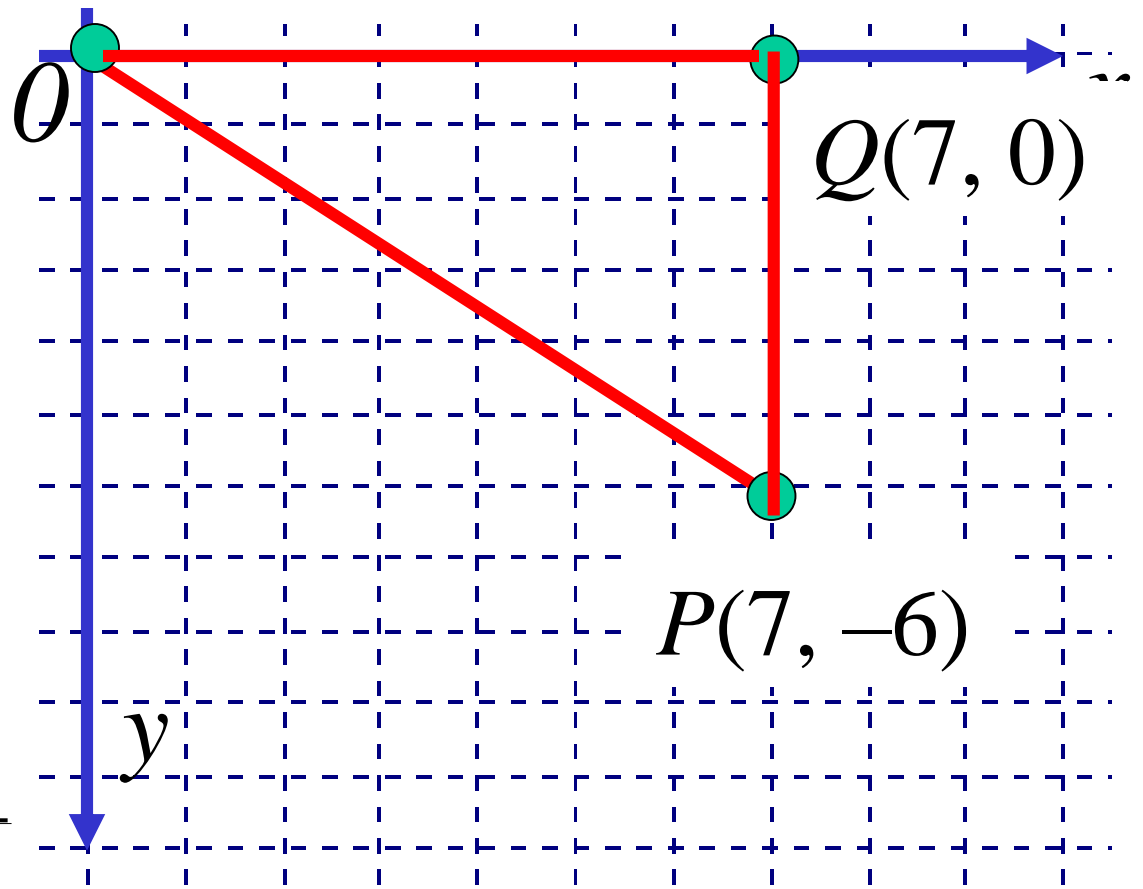
$$Q(7, 0)$$

$$R(0, 0)$$

$$OP = \sqrt{(7)^2 + (-6)^2}$$

$$OP = \sqrt{49 + 36}$$

$$OP = \sqrt{85} \approx 9.2$$



$$\text{Perimeter} = 7 + 6 + 9.2$$

$$\text{Perimeter} = 22.2$$