

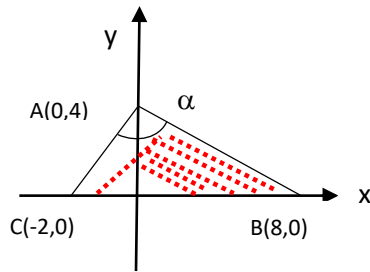
Equation of a circle

3 points are given

When we show that $\alpha = 90^\circ$

We know where the center of the circle is . we find a_1 and a_2

When $a_1 a_2 = -1 \Rightarrow \alpha = 90^\circ$



$$a_1 a_2 = \frac{4}{2} \cdot \frac{4}{-8} = -1 \Rightarrow \alpha = 90^\circ$$

$$\text{The Mid of BC } \frac{x_1 + x_2}{2} = \frac{-2 + 8}{2} = 3$$

$O(3,0)$ the center

$$2R = 8 - (-2) = 10 \Rightarrow R = 5$$

The equation of the circle is

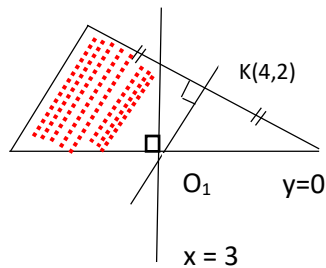
$$(x-3)^2 + y^2 = 25$$

Another way to show that

$$a = 90^\circ, \text{ if } a^2 + b^2 = c^2$$

$$(8^2 + 4^2) + (4^2 + 2^2) = 10^2$$

$$80 + 20 = 100$$



The slope of AB

$$a = \frac{4}{-8} = -\frac{1}{2} \quad a_{\perp} = 2$$

$$k(4,2) \quad 2$$

$$y - 2 = 2(x - 4) \Rightarrow y = 2x - 6$$

$$x = 3 \quad y = 0$$

The center is (3,0)