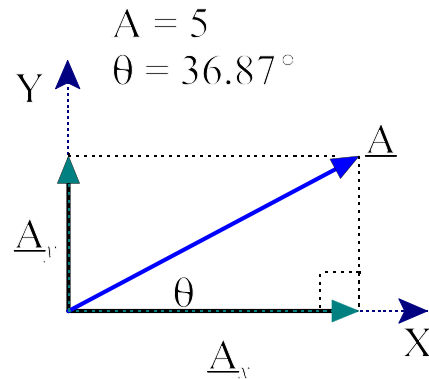


Example problem:

Vector \underline{A} is has a magnitude of 5 units and makes an angle of 36.87 degrees with the horizontal (i.e., positive X-axis).

- determine the components of \underline{A} in the horizontal and vertical directions
- represent vector \underline{A} in terms of its components



(a) to determine the components use the trigonometry functions because we know the hypotenuse of \underline{A} and the angle between it and the horizontal X-axis (θ)

$$\cos\theta = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{A_x}{A}$$

$$A_x = A \cos\theta = 5 \times \cos 36.87 = 4.00$$

$$\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{A_y}{A}$$

$$A_y = A \sin\theta = 5 \times \sin 36.87 = 3.00$$

(b) vector \underline{A} represented in terms of its components is then

$$\underline{A} = A_x \underline{i} + A_y \underline{j} = 4.00 \underline{i} + 3.00 \underline{j} = (4.00, 3.00)$$