Answer on Question #59438-Physics-Other

The x component of vector Upper A right-arrow is -25.9 m and the y component is +41.8 m.

(a) What is the magnitude of Upper A right-arrow?

(b) What is the angle between the direction of Upper A right-arrow and the positive direction of x?

Solution

(a)

$$|\vec{A}| = \sqrt{A_x^2 + A_y^2} = \sqrt{(-25.9)^2 + (41.8)^2} = 49.2 \; m.$$

(b) The angle is in the second quadrant. So,

$$\theta = 180° - \tan^{-1}\left(\frac{|A_y|}{|A_x|}\right) = 180° - \tan^{-1}\left(\frac{41.8}{25.9}\right) = 122°.$$