Q. 02 *Find magnitude and direction of a vector,* $\mathbf{A} = (6\hat{\mathbf{i}} - 8\hat{\mathbf{j}})$.

Solution **Magnitude of A**

$$|\mathbf{A}| \text{ or } A = \sqrt{(6)^2 + (-8)^2}$$

$$= 10 \text{ units}$$

Direction of A Vector **A** can be shown as

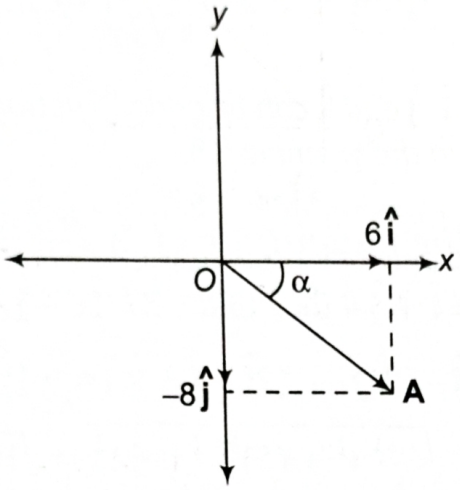

Fig. 5.28

$$\tan \alpha = \frac{8}{6} = \frac{4}{3}$$

$$\therefore \quad \alpha = \tan^{-1}\left(\frac{4}{3}\right) = 53°$$

Therefore, **A** is making an angle of 53° from positive *x*-axis towards negative *y*-axis.