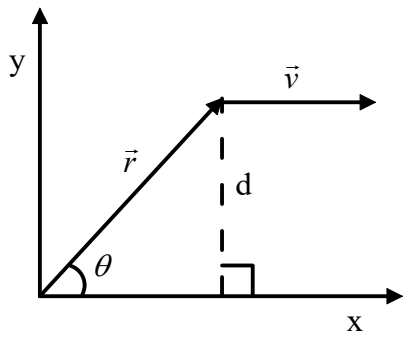
A particle is moving along a straight line parallel to x-axis with constant velocity. Then its angular momentum about the origin,

(A) increases with time
(B) decreases with time
(C) remains constant all the time
(D) has direction along x-axis all the time

*Solution*




Angular momentum $\vec{l} = \vec{r} \times \vec{p} = -mv(r \sin\theta)\hat{k} = -mvd\hat{k}$

Since d is constant, the magnitude of angular moment mvd remains constant all the time.

The direction of angular momentum is towards -ve z axis.

Hence, (C)