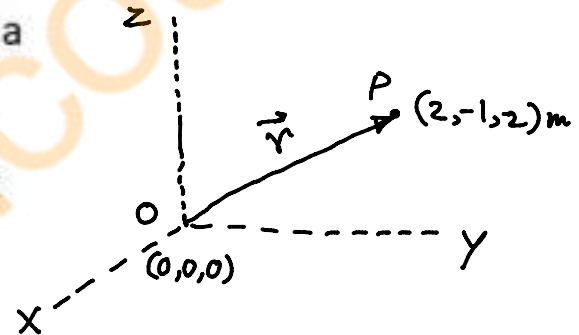


about a point at the same horizontal level and at distance 'd' from the point of start of the stone.

Ex3:

Example: A particle of mass 2kg is moving with a velocity $\vec{v} = 2\hat{i} - 3\hat{j} + 5\hat{k}$. Find the angular momentum of the particle about origin when it passes through (2m, -1m, 2m).



about origin (0,0,0) ; (2m, -1m, 2m)

$$\checkmark \quad \vec{p} = m\vec{v} = 2 \times (2\hat{i} - 3\hat{j} + 5\hat{k}) = 4\hat{i} - 6\hat{j} + 10\hat{k} \text{ kg m/s}$$

$$\vec{r} = (2-0)\hat{i} + (-1-0)\hat{j} + (2-0)\hat{k}$$

$$\vec{r} = 2\hat{i} - \hat{j} + 2\hat{k} \text{ m}$$

$$\vec{L} = \vec{r} \times \vec{p} = \begin{vmatrix} (+)\hat{i} & (-)\hat{j} & (+)\hat{k} \\ 2 & -1 & 2 \\ 4 & -6 & 10 \end{vmatrix} = \hat{i}(-10+12) - \hat{j}(20-8) + \hat{k}(-12+4) \\ = 2\hat{i} - 12\hat{j} - 8\hat{k} \text{ kg m}^2/\text{s}$$