

- 5.8** A body with mass 5 kg is acted upon by a force $\mathbf{F} = (-3\hat{\mathbf{i}} + 4\hat{\mathbf{j}})$ N. If its initial velocity at $t = 0$ is $\mathbf{v} = (6\hat{\mathbf{i}} - 12\hat{\mathbf{j}})$ m s⁻¹, the time at which it will just have a velocity along the y -axis is
- (a) never
 - (b) 10 s
 - (c) 2 s
 - (d) 15 s

⑧

$$m = 5 \text{ kg}$$

$$F = (-3\hat{i} + 4\hat{j}) \text{ N} \quad \Rightarrow \quad a = \frac{1}{5} (-3\hat{i} + 4\hat{j}) \text{ m/s}^2$$

$$u = v = (6\hat{i} - 12\hat{j}) \text{ m/s}$$

\Rightarrow According to ques, $v_x = 0$. (Final)

~~$$v_x = u_x + a_x t$$~~

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$$0 = 6 + \left(-\frac{3}{5}\right) t$$

$$t = 10 \text{ s}$$