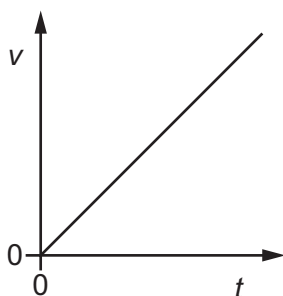
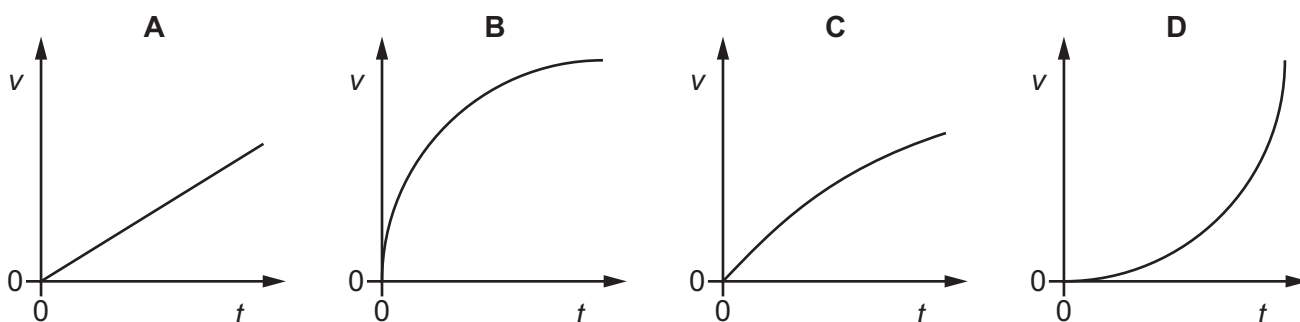


- 9 An object falls freely from rest in a vacuum. The graph shows the variation with time  $t$  of the velocity  $v$  of the object.



Which graph, **using the same scales**, represents the object falling in air?

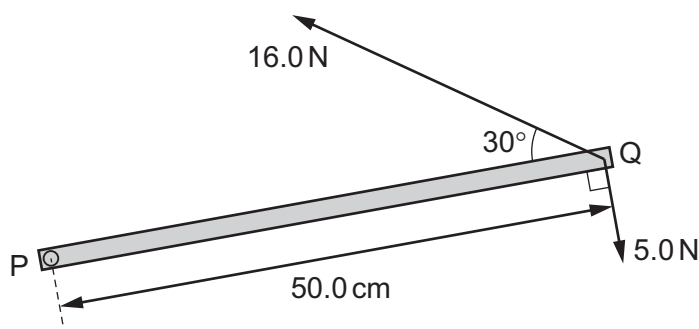


- 10 A rock of mass  $2m$ , travelling in deep space at velocity  $v$ , explodes into two parts of equal mass, one of which is then stationary.

What is the kinetic energy of the moving part after the explosion?

- A  $\frac{1}{2}mv^2$       B  $mv^2$       C  $\frac{3}{2}mv^2$       D  $2mv^2$

- 11 A horizontal metal bar PQ of length 50.0 cm is hinged at end P. The diagram shows the metal bar viewed from above.



Two forces of 16.0 N and 5.0 N are in the horizontal plane and act on end Q, as shown.

What is the resultant moment about P due to the two forces?

- A 1.5 Nm      B 4.4 Nm      C 6.5 Nm      D 9.4 Nm