

- 4 An object of mass 3.0 kg is falling vertically from rest. Air resistance  $R$ , in newtons, is given by the empirical equation

$$R = 0.60v$$

where  $v$  is the velocity in metres per second.

What is the maximum velocity of the object and what is the acceleration of the object when its velocity is  $12\text{ ms}^{-1}$ ?

	maximum velocity / $\text{ms}^{-1}$	acceleration when $v = 12\text{ ms}^{-1}$ / $\text{ms}^{-2}$
A	16	2.4
B	16	7.4
C	49	2.4
D	49	7.4

- 5 A ball falls vertically on to a horizontal surface. The momentum of the ball just before it hits the