

Chapter 5 Exercise 5A



$$F = 2,500 - 500$$

$$= 2,000$$

$$F = ma$$

$$2,000 = 1,000a$$

$$\Rightarrow a = 2 \text{ m/s}^2$$

(ii) $a = 2, u = 0, t = 20, s = ?$

$$s = ut + \frac{1}{2}at^2$$

$$= 0(20) + \frac{1}{2}(2)(400)$$

$$= 400 \text{ m}$$



$$F = 100 - 40 = 60$$

$$F = ma$$

$$\Rightarrow 60 = 120a$$

$$\Rightarrow a = \frac{1}{2} \text{ m/s}^2$$

$$F = ma$$

$$\Rightarrow 60 = 180a$$

$$\Rightarrow a = \frac{1}{3} \text{ m/s}^2$$

Q. 3. $F = ma$

$$\Rightarrow (t - 40) = 150\left(\frac{1}{2}\right)$$

$$\Rightarrow T = 115 \text{ N}$$

$$F = ma$$

$$\Rightarrow (t - 40) = 240\left(\frac{1}{2}\right)$$

$$\Rightarrow T = 160 \text{ N}$$



$$F = ma$$

$$\Rightarrow (40 - R) = 120\left(\frac{1}{8}\right)$$

$$\Rightarrow R = 25 \text{ N}$$

Q. 5. $F = ma$

$$-900 = (0.060)a$$

$$\Rightarrow a = -15,000 \text{ m/s}^2$$

$$u = 150, v = 0, a = -15,000, s = ?$$

$$v^2 = u^2 + 2as$$

$$0 = 22,500 + 2(-15,000)s$$

$$\Rightarrow s = 0.75 \text{ m} = 75 \text{ cm}$$

Q. 6. $u = 0, s = 8, t = 8, a = ?$

$$s = ut + at^2$$

$$\Rightarrow 8 = (0)8 + \frac{1}{2}(a)(64)$$

$$\Rightarrow a = \frac{1}{4} \text{ m/s}^2$$

$$F = ma$$

$$\Rightarrow (T - 20) = 80\left(\frac{1}{4}\right)$$

$$T = 40 \text{ N}$$

Q. 7. (i) $u = 0, v = 10, s = 50, a = ?$

$$v^2 = u^2 + 2as$$

$$\Rightarrow 100 = 0 + 2(a)(50)$$

$$\Rightarrow a = 1 \text{ m/s}^2$$

(ii) $F = ma$

$$\Rightarrow T - 350 = (800)(1)$$

$$\Rightarrow T = 1,150 \text{ N}$$

Q. 8. $u = 200, v = 0, s = 1, a = ?$

$$v^2 = u^2 + 2as$$

$$\Rightarrow 0 = 40,000 + 2(a)(1)$$

$$\Rightarrow a = -20,000$$

$$F = ma$$

$$\Rightarrow R = (0.050)(-20,000)$$

$$= -1,000 \text{ N}$$

$$u = 400, v = 0, a = -20,000,$$

$$s = ?$$

$$v^2 = u^2 + 2as$$

$$\Rightarrow 0 = 160,000 + 2(-20,000)s$$

$$\Rightarrow s = 4 \text{ m}$$