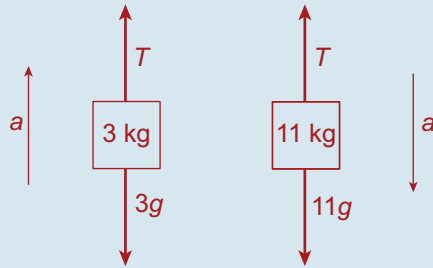


Exercise 5C

Q. 1. (i)



$$T - 3g = 3a$$

$$11g - T = 11a$$

Add equations:

$$14a = 8g$$

$$\Rightarrow a = \frac{4g}{7}$$

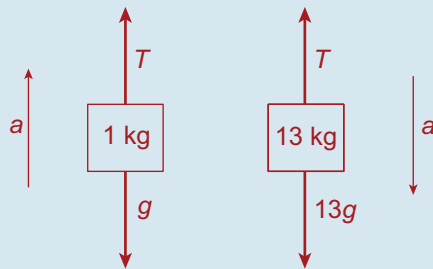
$$= 5.6 \text{ m/s}^2$$

(ii) $T - 3g = 3a$

$$\Rightarrow T - 29.4 = 16.8$$

$$\Rightarrow T = 46.2 \text{ N}$$

Q. 2. (i)



$$T - g = a$$

$$13g - T = 13a$$

Add equations:

$$14a = 12g$$

$$\Rightarrow a = \frac{6g}{7}$$

$$= 8.4 \text{ m/s}^2$$

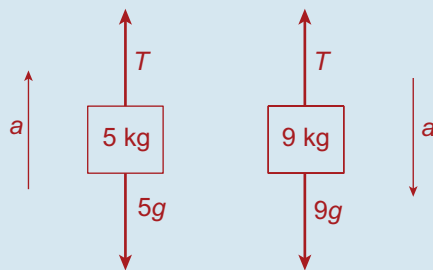
(ii) $u = 0, a = 8.4, t = 3$

$$v = u + at$$

$$\Rightarrow v = 0 + (8.4)(3)$$

$$\Rightarrow v = 25.2 \text{ m/s}$$

Q. 3. (i)



$$T - 5g = 5a$$

$$9g - T = 9a$$

Add equations:

$$14a = 4g$$

$$\Rightarrow a = \frac{2g}{7}$$

$$= 2.8 \text{ m/s}^2$$

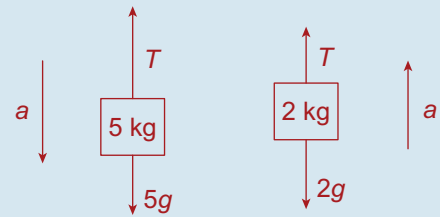
(ii) $u = 0, a = 2.8, t = 3$

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

$$\Rightarrow s = (0)(3) + \frac{1}{2}(2.8)(3)^2$$

$$\Rightarrow s = 12.6 \text{ m}$$

Q. 4. (i)



$$5g - T = 5a$$

$$T - 2g = 2a$$

Add equations:

$$7a = 3g$$

$$a = \frac{3g}{7}$$

$$= 4.2 \text{ m/s}^2$$

(ii) $u = 0, s = 2, a = 4.2, v = ?$

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

$$\Rightarrow v^2 = 0 + 2(4.2)(2)$$

$$\Rightarrow v = \sqrt{16.8} \text{ m/s}$$

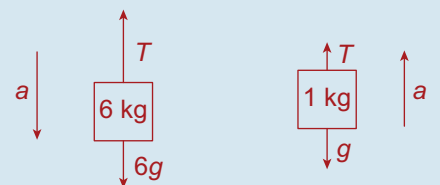
(iii) $u = \sqrt{16.8}, v = 0, a = -9.8, s = ?$

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

$$0 = 16.8 + 2(-9.8)(s)$$

$$\Rightarrow s = \frac{6}{7} \text{ m}$$

Q. 5. (i)



$$6g - T = 6a$$

$$T - g = 1a$$

Add equations:

$$7a = 5g$$

$$a = \frac{5g}{7}$$

$$= 7 \text{ m/s}^2$$