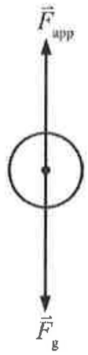
6.



$$F_{net} = ma$$
$$= (6.3\ \text{kg})(0.45\ \text{m/s}^2)$$
$$= 2.8\ \text{N}$$
$$F_g = mg$$
$$= (6.3\ \text{kg})(9.81\ \text{m/s}^2)$$
$$= 62\ \text{N}$$
$$F_{net} = F_{app} - F_g$$
$$F_{app} = F_{net} + F_g$$
$$= 2.8\ \text{N} + 62\ \text{N}$$
$$= 65\ \text{N}$$

7. a)

$$F_{net} = ma$$
$$= (1.20\times10^3\ \text{kg})(1.05\ \text{m/s}^2)$$
$$= 1.26\times10^3\ \text{N}$$
$$F_g = mg$$
$$= (1.20\times10^3\ \text{kg})(9.81\ \text{m/s}^2)$$
$$= 1.18\times10^4\ \text{N}$$
$$F_{net} = F_g - F_T$$
$$F_T = F_g - F_{net}$$
$$= 1.18\times10^4\ \text{N} - 1.26\times10^3\ \text{N}$$
$$= 1.05\times10^4\ \text{N}$$

b)

$$F_{net} = F_T - F_g$$
$$F_T = F_{net} + F_g$$
$$= 1.26\times10^3\ \text{N} + 1.18\times10^4\ \text{N}$$
$$= 1.30\times10^4\ \text{N}$$

c) $F_{net} = F_T - F_g$

Acceleration = 0; therefore $F_{net} = 0$

Therefore,

$$T = F_g$$
$$= mg$$
$$= (1.20\times10^3\ \text{kg})(9.81\ \text{m/s}^2)$$
$$= 1.18\times10^4\ \text{N}$$

8.

$$F_{net} = F_{app} - F_g$$
$$= 85.0\ \text{N} - 72.0\ \text{N}$$
$$= 13.0\ \text{N}$$
$$F_{net} = ma$$
$$a = \frac{F_{net}}{m}$$
$$= \frac{13.0\ \text{N}}{36.0\ \text{kg}}$$
$$= 0.361\ \text{m/s}^2$$

9. acceleration = 0; therefore $F_{net} = 0$

$$F_{net} = F_{app} - F_{fr}$$
$$0 = 90.0\ \text{N} - F_{fr}$$
$$F_{fr} = 90.0\text{N}$$

10. $v^2 = v_0{}^2 + 2ad$

$$0 = (0.50\ \text{m/s})^2 + 2(a)(0.25\ \text{m})$$
$$a = -0.50\ \text{m/s}^2$$

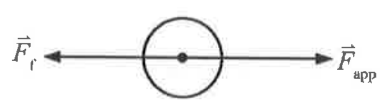
As the object comes to the rest, the magnitude of acceleration is negative.

$$\vec{F}_{net} = m\vec{a}$$
$$= (1.0\text{kg})(-0.50\ \text{m/s}^2)$$
$$= -0.50\ \text{N}$$

Again

$$F_{net} = F_{app} - F_{fr}$$
$$-0.50\ \text{N} = 0 - F_{fr}$$
$$F_{fr} = 0.50\ \text{N}$$
$$= 0.50\ \text{N}$$

11.



$$F_{net} = F_{app} - F_{fr}$$
$$= 2.5\times10^2\ \text{N} - 1.4\times10^2\ \text{N}$$
$$= 1.1\times10^2\ \text{N}$$
$$F_g = mg$$

Therefore

$$m = \frac{F_g}{g}$$
$$= \frac{1.0\times10^2\ \text{N}}{9.81\ \text{m/s}^2}$$
$$= 1.0\times10^1\ \text{kg}$$

