

PROBLEM 1.18

(a) Mexico City,  $g = 9.779 \text{ m/s}^2$

$$F_{\text{grav}} = mg = (80 \text{ kg}) \left( 9.779 \frac{\text{m}}{\text{s}^2} \right) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right|$$
$$= 782.32 \text{ N}$$



(b) Cape Town,  $g = 9.796 \text{ m/s}^2$

$$F_{\text{grav}} = mg = (80 \text{ kg}) \left( 9.796 \frac{\text{m}}{\text{s}^2} \right) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right|$$
$$= 783.68 \text{ N}$$



(c) Tokyo,  $g = 9.798 \text{ m/s}^2$

$$F_{\text{grav}} = mg = (80 \text{ kg}) \left( 9.798 \frac{\text{m}}{\text{s}^2} \right) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right|$$
$$= 783.84 \text{ N}$$



(d) Chicago,  $g = 9.803 \text{ m/s}^2$

$$F_{\text{grav}} = mg = (80 \text{ kg}) \left( 9.803 \frac{\text{m}}{\text{s}^2} \right) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right|$$
$$= 784.24 \text{ N}$$



(e) Copenhagen,  $g = 9.815 \text{ m/s}^2$

$$F_{\text{grav}} = mg = (80 \text{ kg}) \left( 9.815 \frac{\text{m}}{\text{s}^2} \right) \left| \frac{1 \text{ N}}{1 \text{ kg} \cdot \text{m/s}^2} \right|$$
$$= 785.2 \text{ N}$$

