Mass and Weight

1. Find the weights of these objects:
   a. 1800 kg car
   b. 0.12 kg baseball

(6)

$\underset{\text{(a)}}{\textcircled{a}}$ $\dfrac{m=1800kg}{W=?}$ $\left|\begin{array}{l} W = m \cdot g \\[4pt] W = 1800kg \cdot 9.8 m/s^2 \\[4pt] W = 17640 N \end{array}\right|$

2. Find the masses of these objects:
   a. 14 N box
   b. 680 N girl

(6)

$\underset{\text{(a)}}{\textcircled{a}}$ $\dfrac{W=14N}{m=?}$ $\left|\begin{array}{l} m = \dfrac{W}{g} \\[10pt] m = \dfrac{14N}{9.8 m/s^2} = 1.4 kg \end{array}\right.$

3. A 75 kg astronaut travels to the moon. What is his weight...
   a. on earth?
   b. on the moon, where g = 1.6 m/s²?

a) $\dfrac{m=75 kg}{W=?}$ $\left|\begin{array}{l} W = m \cdot g \\[4pt] W = 75 kg \cdot 9.8 m/s^2 \\[4pt] \boxed{W = 735 N} \end{array}\right.$

b) $\begin{array}{l} m = 75kg \\ g = 1.6 m/s^2 \\ \hline W = ? \end{array}$ $\left|\begin{array}{l} W = m \cdot g \\[4pt] W = 75 kg \cdot \\[4pt] \cdot 1.6 m/s^2 \end{array}\right.$

$W = 75 kg \cdot 1.6 m/s^2$

$\boxed{W = 120 N}$