

Solutions

Each answer shows the steps, then the **result**.

2.1

- $W = mg$

$$W = (6.0 \text{ kg})(10 \text{ N/kg}) = \mathbf{60 \text{ N}}$$

2.2

- weight in newtons (N); mass in kilograms (kg)

3.1 B

- mass is unchanged; weight is less because the Moon's gravity is weaker

3.2

(a) $m = W/g$

$$m = \frac{48 \text{ N}}{10 \text{ N/kg}} = \mathbf{4.8 \text{ kg}}$$

(b) $W = mg$

$$W = (4.8 \text{ kg})(1.6 \text{ N/kg}) = \mathbf{7.7 \text{ N}}$$

3.3

- mass is the amount of matter, which does not change with location
- weight is the force of gravity, which is smaller on the Moon because its gravitational field strength is weaker