REPORT ALL NUMBERS TO THREE SIGNIFICANT FIGURES:
Use the conversion constants and data given on the front page.

(a) A rock with a mass of \( m = 5.00 \text{ kg} \) is on the moon. What is the weight of this object on the moon?

\[ W = m \cdot g_{\text{moon}} = 5.00 \cdot 1.67 = 8.35 \text{ N} \]

(b) What is the mass of the object in (a) on the moon?

\[ \text{mass is invariant} \quad m = 5.00 \text{ kg} \]

(c) Convert 15.7 N to pounds.

\[ 15.7 \text{ N} = 15.7 \cdot 0.225 \text{ pounds} = 3.53 \text{ pounds} \]

(d) Calculate the acceleration of a car with a constant speed (in ft/s\(^2\)) of 65 mi/hr on a curve of radius 100 m. \( 100 \cdot 3.28 \)

\[ a = 27.7 \text{ ft/s}^2 \]

(e) A block of mass 3.62 kg is at rest on an inclined plane. Calculate the frictional force on it. \( (\mu_s = 0.4, \mu_k = 0.5) \)

The maximum static friction is \( F_{f \text{ max}} = \mu_s \cdot N = \mu_s \cdot mg \cos 15^\circ \)

\[ F_{f \text{ max}} = W_f = 50 \text{ so } W_f < F_{f \text{ max}} \]

The body is at rest. In this case the static frictional force is equal to the force which tends to move it

\[ F_f = mg \sin 15^\circ = 9.18 \text{ kg} \cdot \frac{5}{2} = 9.18 \text{ N} \]

- 1 pt deducted for either wrong units or a number of digits different from 3