1 Forces, energy and pressure – Part 2 — Answers

Answers

Work through these after trying the questions yourself.

1.1 Mass is the amount of matter (in kg) and does not change; weight is the force of gravity on the mass (in N) and can change (e.g. less on the Moon).
1.2 $W = mg = 5.0 \times 10 = 50$ N.
1.3 $\rho = m/V = 54/20 = 2.7$ g/cm^3.
1.4 $a = F/m = 20/4.0 = 5.0$ m/s^2.
1.5 $p = \dfrac{F}{A}$; the unit is the pascal (Pa).
1.6 A sharp blade has a very small area, so the same force gives a much larger pressure.

1.7 First the weight: $W = mg = 6.0 \times 10 = 60$ N. Then the pressure: $p = F/A = 60/0.02 = 3000$ Pa.