13 Gravitational fields – Part 1 —Answers

Answers

Work through these after trying the questions yourself.

13.1 A region where a mass feels a force from other masses.

13.2 $g = F/m$.

13.3 $g = F/m = 49/5.0 = 9.8$ N kg^{-1}.

13.4 N kg ^{1}.

13.5 Radially inwards (towards the mass).

13.6 Near the surface you only see a tiny patch of the field, so the lines look parallel and the field seems uniform. Far out you see the whole field, which spreads out from the Earth's centre, so the lines are clearly radial.

13.7 Mass $m = F/g = 12/1.6 = 7.5$ kg. Weight on Earth $= mg = 7.5 \times 9.8 = 74$ N (to 2 s.f.). The mass is the same everywhere; only the weight changes.