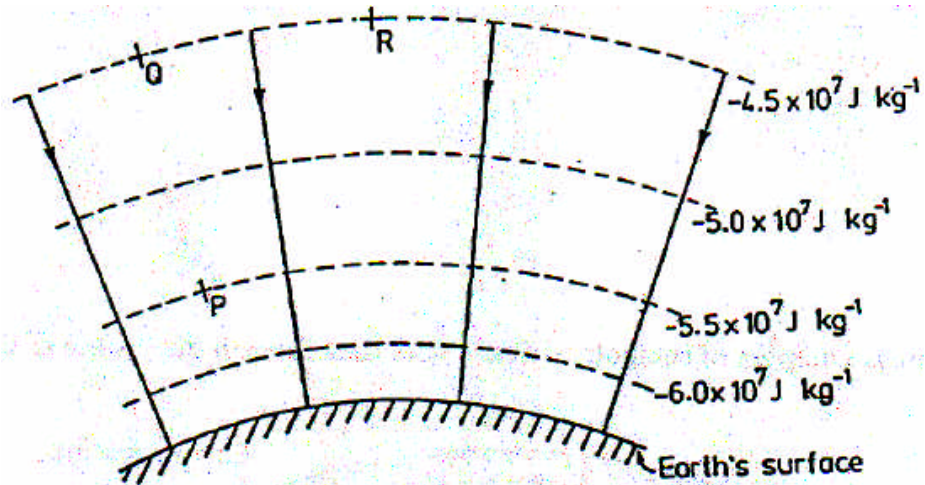


Chapter 11
Short answer question

The diagram below shows a section through part of the Earth's gravitational field. The broken lines, representing equipotentials, drawn at intervals of $0.5 \times 10^7 \text{ J kg}^{-1}$ are perpendicular to the field lines. The gravitational potential, relative to a zero value at infinity, is shown at each of the broken lines.



(a) State why:

1. The potential at Q is greater than at P
But 2. The potential at Q is still negative.

1.

2.

(b) Calculate the change in gravitational potential energy of a spacecraft of mass 2000 kg when it moves from:

1. P to Q

2. Q to R

- (c) Explain why the spacing of the equipotentials is closer near the surface of the Earth than further above it.