

- 1 (a) Define gravitational field strength at a point.

.....  
.....

[1]

- (b) From Newton's Law of gravitation and the definition of gravitational field strength, show that the gravitational field strength due to a point mass is given by

$$g = \frac{GM}{r^2}$$

where  $G$  is the gravitational constant,  $M$  is the mass of the point mass, and  $r$  is the distance from the point mass.

[2]

- (c) By reference to the lines of gravitational force near to the surface of the Earth, explain why the gravitational field strength  $g$  close to the Earth's surface is approximately constant.

.....  
.....  
.....  
.....  
.....

[3]