

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

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[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.

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[3]