



QUESTION WORKBOOK

The field concept

Gravitational fields · Year 13

AQA 3.7.1 · CIE 13.1 · OCR A 5.4.1

9 questions · 25 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Define a force field. [2]

A2 State the property that gives rise to each of the gravitational, electric and magnetic fields. [2]

A3 A mass of 2.0 kg experiences a gravitational force of 19.6 N. Calculate the gravitational field strength using $g = F/m$. [2]

SECTION B · Standard

B1 State one similarity and one difference between gravitational and electric forces between two point objects. [3]

- B2** A 5.0 kg object experiences a gravitational force of 40 N at a certain point. Calculate the gravitational field strength there. [3]

- B3** Define gravitational field strength and state its unit. [3]

SECTION C · Stretch

- C1** Describe the pattern of field lines around an isolated point mass, and in a uniform gravitational field near the Earth's surface. [4]

- C2** At a point above a planet, a 10 kg mass experiences a gravitational force of 82 N. Calculate the field strength at that point. [3]

- C3** Explain why gravitational fields are always attractive, whereas electric fields can be either attractive or repulsive. [3]
