

- 5 (a) (i) State what is meant by a *field of force*.

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.....
..... [2]

- (ii) State **one** similarity and **one** difference between the electric field due to a point charge and the gravitational field due to a point mass.

similarity:

.....
.....

difference:

.....
.....
..... [2]

- (b) An isolated solid metal sphere of radius 0.15m is situated in a vacuum, as illustrated in Fig. 5.1.

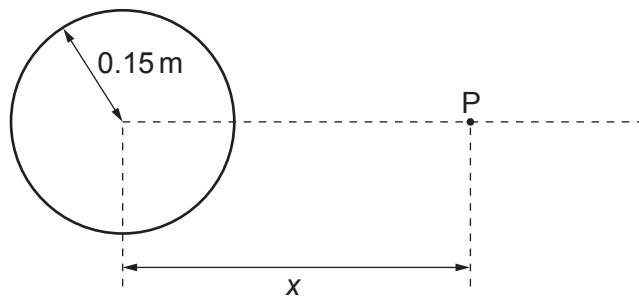


Fig. 5.1

The electric field strength at the surface of the sphere is 84 V m^{-1} .

Determine:

- (i) the charge Q on the sphere

$$Q = \dots \text{ C} [2]$$

- (ii) the electric field strength at point P, a distance $x = 0.45\text{ m}$ from the centre of the sphere.

$$\text{electric field strength} = \dots \text{Vm}^{-1} [2]$$

- (c) Use information from (b) to show, on the axes of Fig. 5.2, the variation of the electric field strength E with distance x from the centre of the sphere for values of x from $x = 0$ to $x = 0.45\text{ m}$.

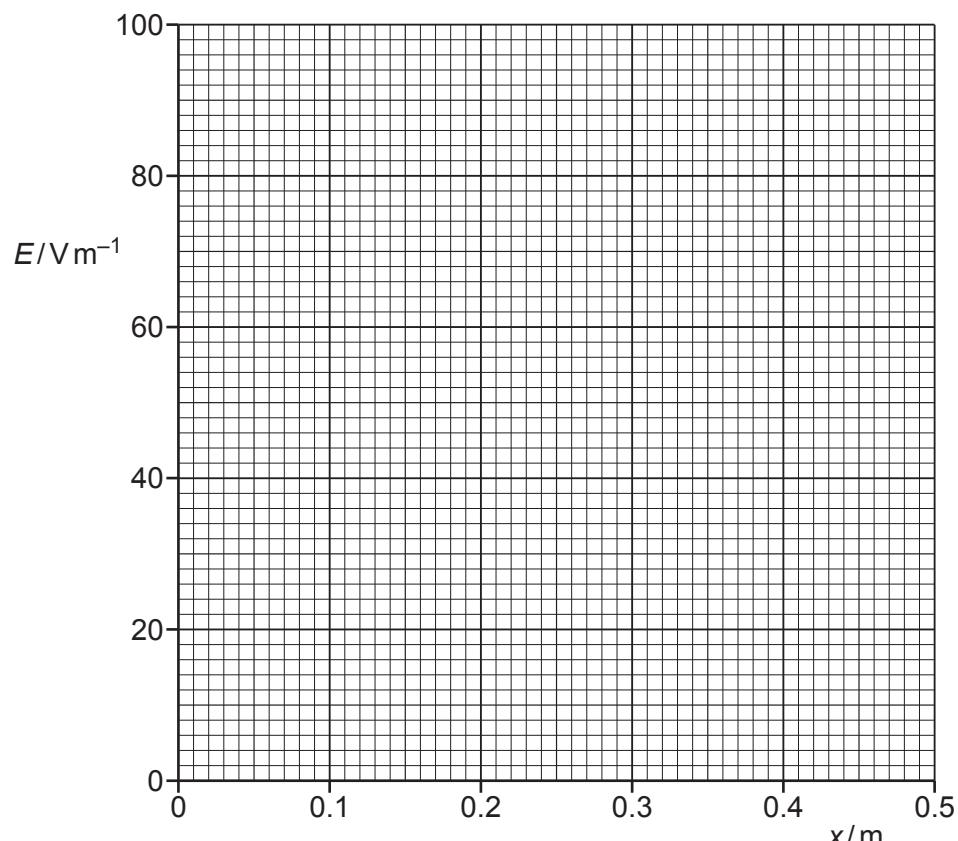


Fig. 5.2

[3]