

- 7 (a) State **one** similarity and **one** difference between the electric potential produced by a point electric charge and the gravitational potential produced by a point mass.

similarity

.....

difference

.....

[2]

- (b) Two point charges, A and B, are separated in a vacuum by a distance of 12 cm, as shown in Fig. 7.1.

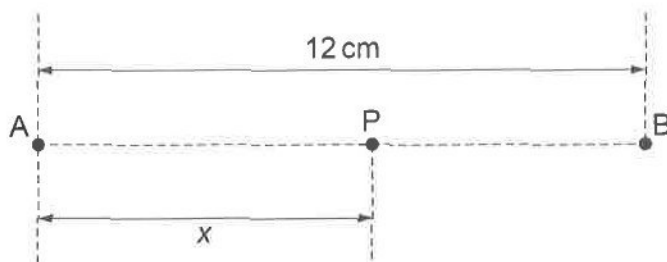


Fig. 7.1

A point P is on the line joining the two charges and is a distance x from charge A.

The variation with distance x of the electric potential V_x at point P is shown in Fig. 7.2.

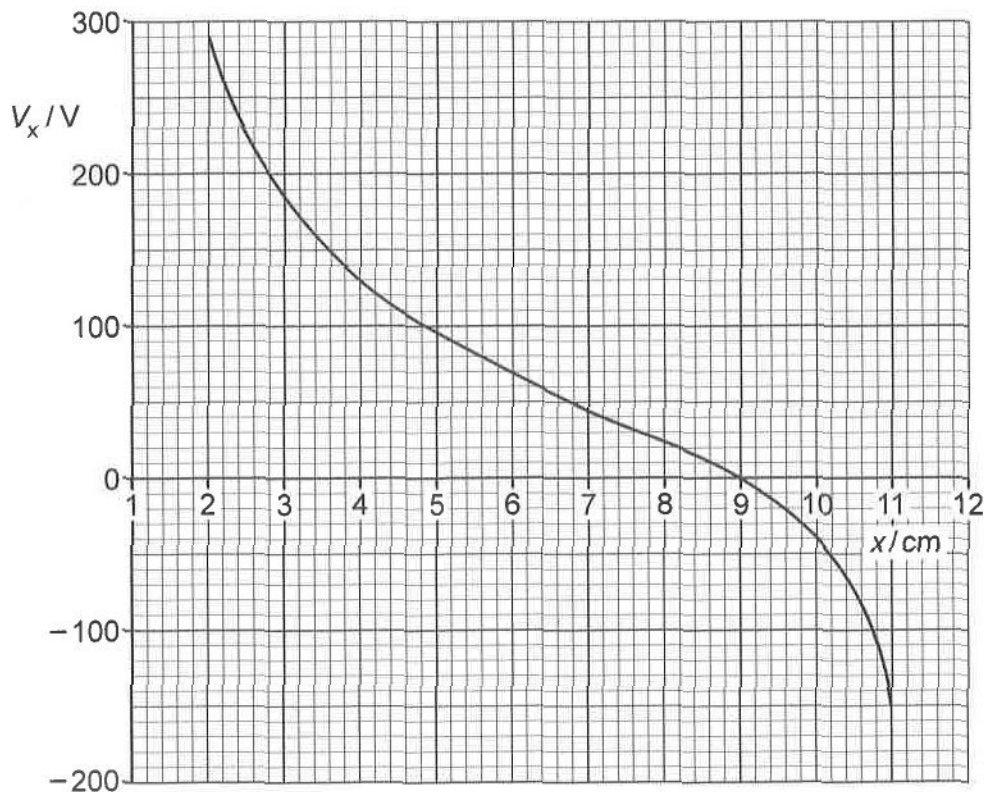


Fig. 7.2



- (i) Explain whether the charges have the same, or opposite, signs.

.....
 [1]

- (ii) Determine the ratio

$$\frac{\text{magnitude of charge A}}{\text{magnitude of charge B}}$$

Explain your working.

ratio = [3]

- (iii) Calculate the magnitude of the electric field strength at point P where $x = 7.0$ cm.

electric field strength = NC^{-1} [3]

[Total: 9]

