

- 5 A positively charged solid metal sphere is isolated in space. The electric field strength E is measured for different distances x from the centre of the sphere. The variation with x of the field strength E is shown in Fig. 5.1.

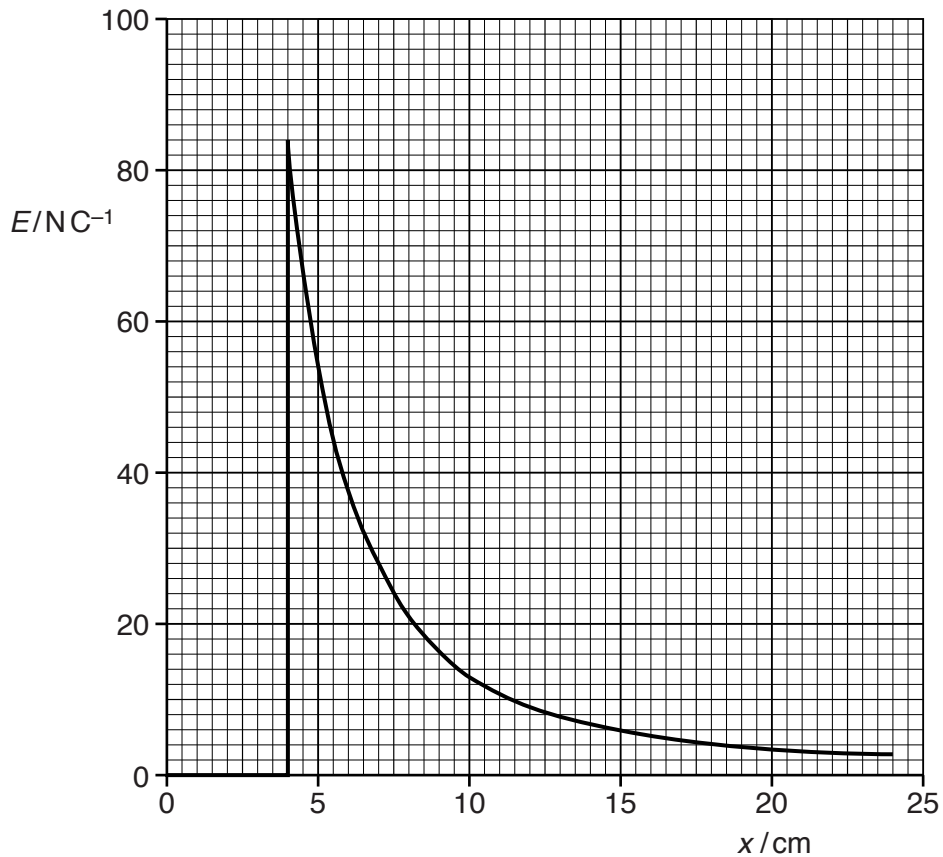


Fig. 5.1

- (a) Suggest why, for values of x less than 4.0 cm, the electric field strength is zero.

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 [2]

- (b) A point charge of $+8.5 \times 10^{-9} \text{ C}$ moves from a point where $x = 7.0 \text{ cm}$ to a point where $x = 5.0 \text{ cm}$.

Use Fig. 5.1 to estimate the change in electric potential energy of this point charge.

energy = J [3]