5 An isolated solid metal sphere of radius r is given a positive charge. The distance from the centre of the sphere is x.

(a) The electric potential at the surface of the sphere is V_0.

On the axes of Fig. 5.1, sketch a graph to show the variation with distance x of the electric potential due to the charged sphere, for values of x from $x = 0$ to $x = 4r$.

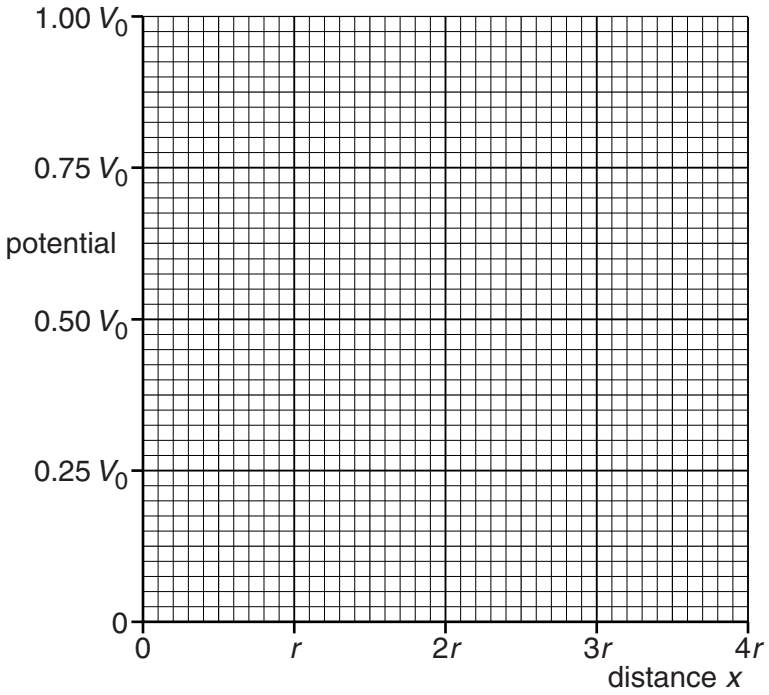

Fig. 5.1

[3]

(b) The electric field strength at the surface of the sphere is E_0.

On the axes of Fig. 5.2, sketch a graph to show the variation with distance x of the electric field strength due to the charged sphere, for values of x from $x = 0$ to $x = 4r$.

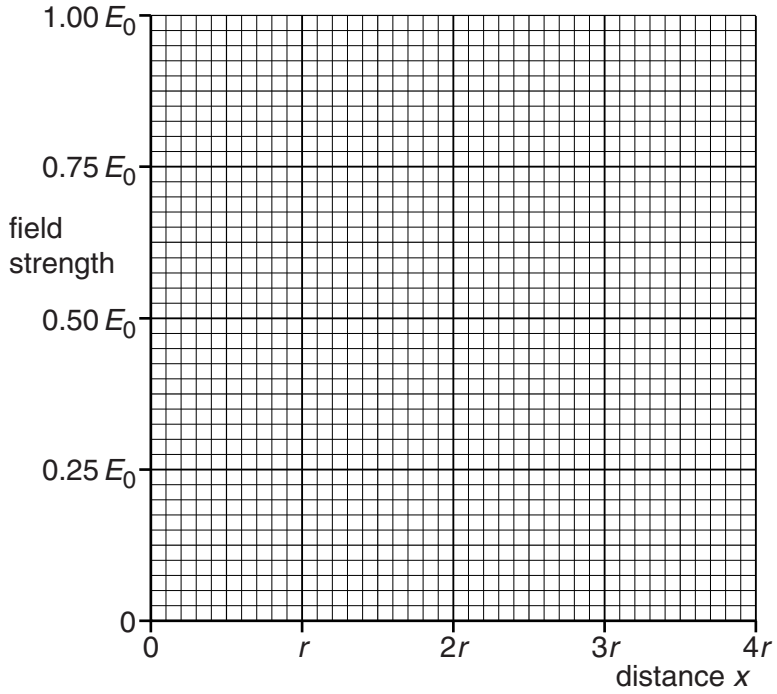

Fig. 5.2

[3]