

5 (a) Define electric potential at a point.

[2]

- (b) Two isolated charged metal spheres X and Y are situated near to each other in a vacuum with their centres a distance of 24 m apart. Point P is at a variable distance  $x$  from the centre of sphere X on the line joining the centres of the spheres.

Fig. 5.1 shows the variation with  $x$  of the electric potential  $V$  due to the spheres at point P.

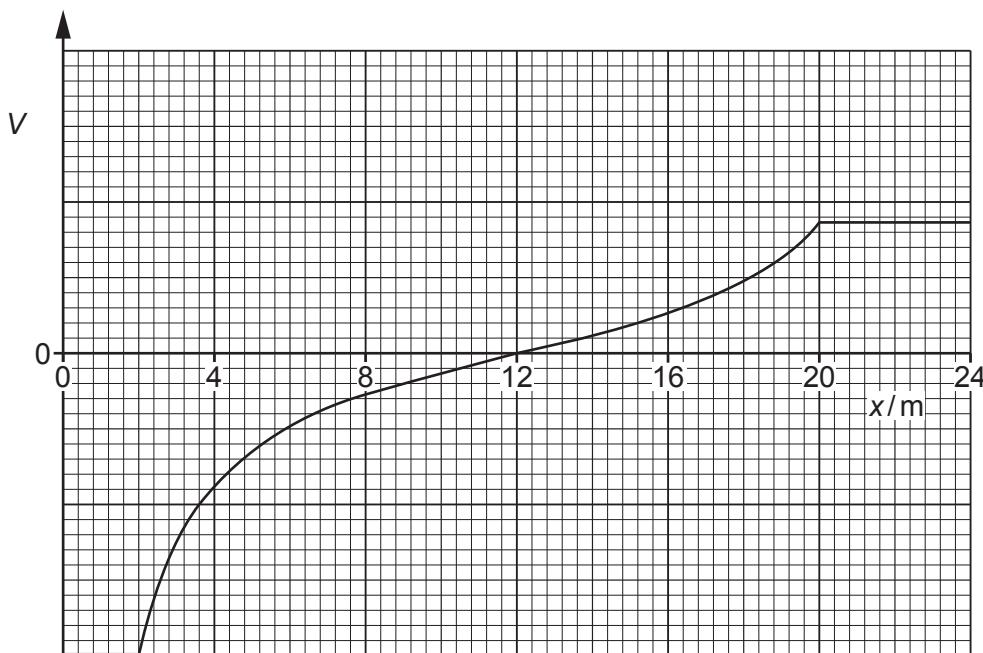


Fig. 5.1

State **three** conclusions that can be drawn about the spheres from Fig. 5.1. The conclusions may be qualitative or quantitative.

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2 .....

3 .....

[3]

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- (c) A positively charged particle is placed at point P in (b), such that  $x = 12\text{m}$ .  
The particle is released.

Describe and explain the subsequent motion of the particle.

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[3]