For Examiner's Use

4 **(a)** Define *electric potential* at a point.

.....

.....

.....[2]

(b) Two isolated point charges A and B are separated by a distance of 30.0 cm, as shown in Fig. 4.1.

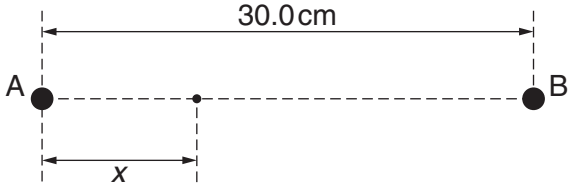

Fig. 4.1

The charge at A is + 3.6 × 10^{-9} C.
The variation with distance *x* from A along AB of the potential *V* is shown in Fig. 4.2.

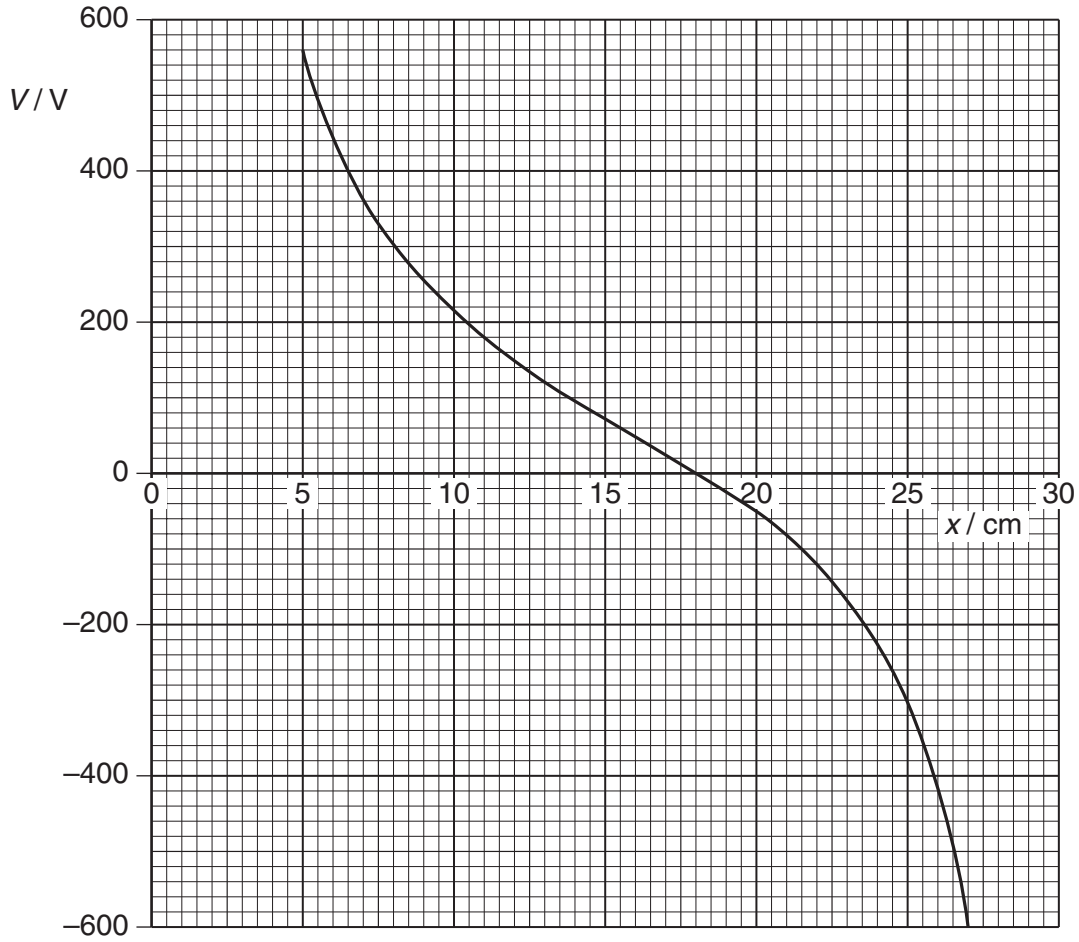

Fig. 4.2

(i) State the value of x at which the potential is zero.

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x = ... cm [1]

(ii) Use your answer in **(i)** to determine the charge at B.

charge = ... C [3]

(c) A small test charge is now moved along the line AB in **(b)** from $x = 5.0$ cm to $x = 27$ cm. State and explain the value of x at which the force on the test charge will be maximum.

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.....

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.....[3]