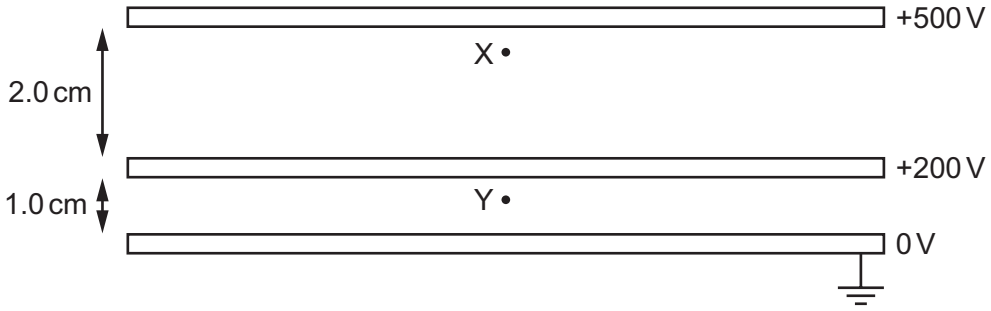
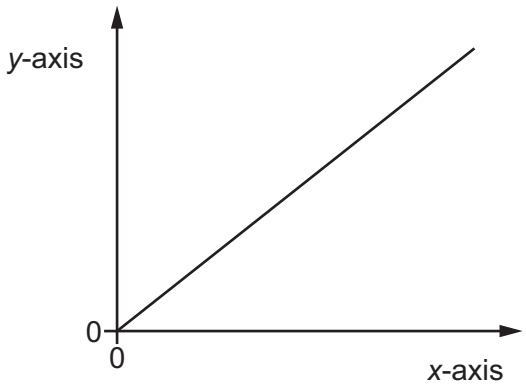
30 Three parallel metal plates of the same area are fixed with a separation of 2.0 cm between the top plate and the centre plate, and 1.0 cm between the centre plate and the bottom plate. The top plate is held at a potential of +500 V, the middle plate at +200 V and the bottom plate is earthed, as shown.



What is the value of the ratio $\frac{\text{magnitude of force on an electron at X}}{\text{magnitude of force on an electron at Y}}$?

A 0.75 **B** 1.00 **C** 1.25 **D** 1.50

31 The diagram shows a graph.



For a uniform metallic wire, what could the graph **not** represent?

	y-axis	*x*-axis
A	current	potential difference
B	resistance	length
C	resistance	temperature in °C
D	potential difference	current

32 An iron wire has length 8.0 m and diameter 0.50 mm. The wire has resistance R.

A second iron wire has length 2.0 m and diameter 1.0 mm.

What is the resistance of the second wire?

A $\frac{R}{16}$ **B** $\frac{R}{8}$ **C** $\frac{R}{2}$ **D** R