**4** Two parallel plates are in a vacuum. One plate is positively charged and the other plate is earthed.

A rectangular conductor of width $x$ is placed in between the plates so that one of its faces is at a distance $0.5x$ from the positively charged plate and the opposite face is at $1.5x$ from the earthed plate as shown in Fig. 4.1.

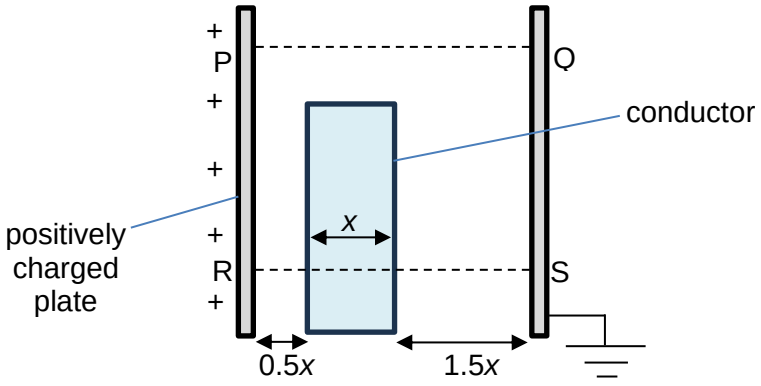


**Fig. 4.1**

The electric potential difference across the parallel plates is 3.00 V.

**(a)** The variation with distance from P to Q of the electric potential along line PQ is shown in Fig. 4.2.

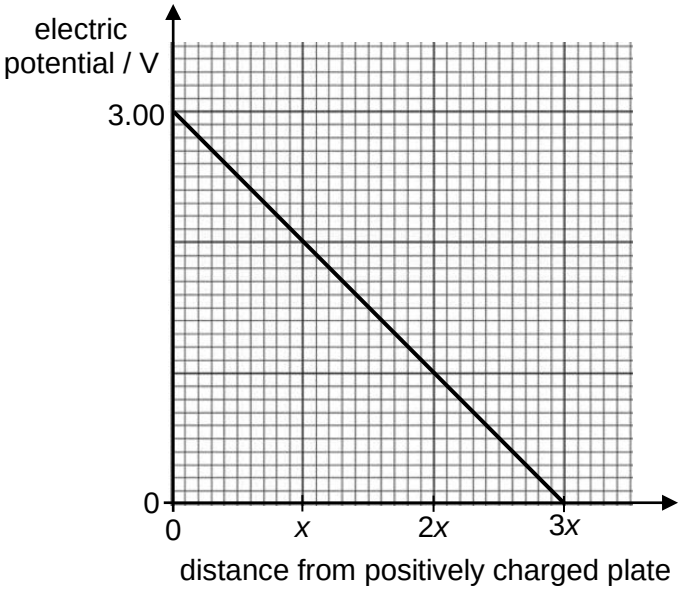


**Fig. 4.2**

On Fig. 4.2, draw a line to show the variation with distance from R to S of the electric potential along the line RS. [2]

**(b)** The variation with distance from P to Q of the electric field strength along line PQ is shown in Fig. 4.3.

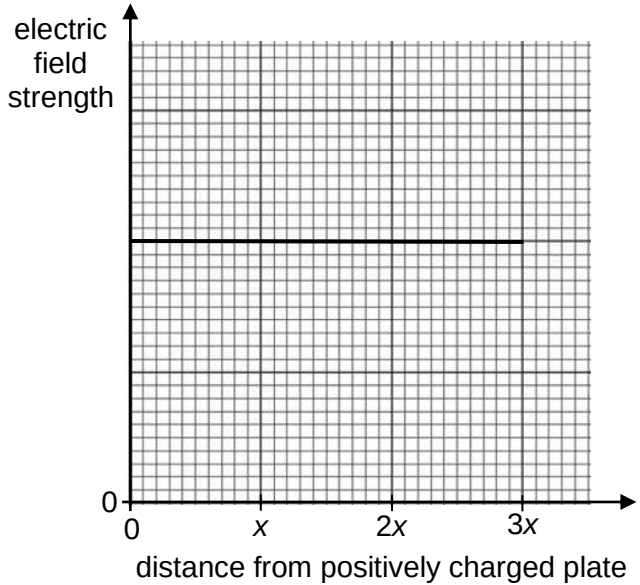


**Fig. 4.3**

On Fig. 4.3, draw a line to show the variation with distance from R to S of the electric field strength along the line RS. [3]

[Total: 5]