

Solutions

Each answer shows the steps, then the **result**.

2.1

- $V = k \frac{q}{r} = 8.99 \times 10^9 \times \frac{6.0 \times 10^{-6}}{0.30} = 1.8 \times 10^5 \text{ V}$

2.2

- they are perpendicular to each other

2.3

- a scalar

3.1 B

3.2 B

3.3

(a)

- each charge is 0.20 m from the midpoint: $V = 2 \times k \frac{q}{r} = 2 \times 8.99 \times 10^9 \times \frac{4.0 \times 10^{-6}}{0.20} = 3.6 \times 10^5 \text{ V}$

(b)

- potential is a scalar, so contributions add directly (no direction)