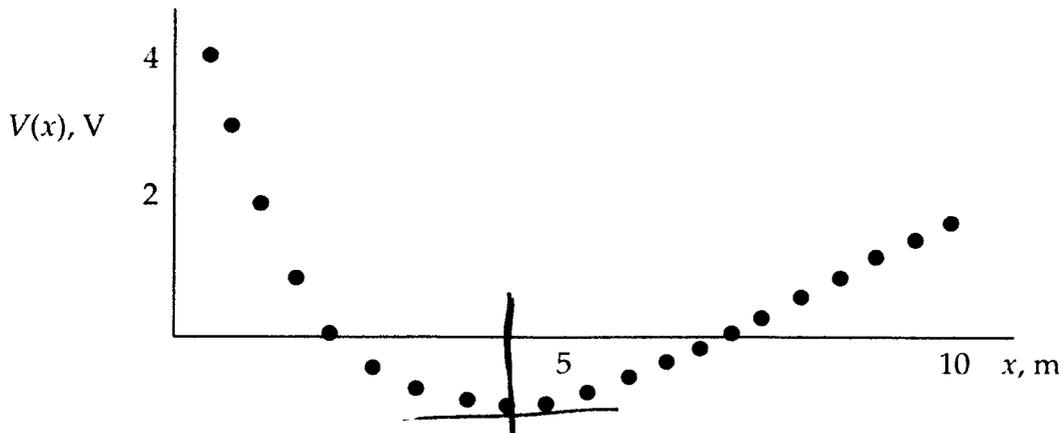


The electric potential due to a particular charge distribution is measured at many points along the x -axis. A plot of this data is shown in below. At what location (or locations) is the x component of the electric field equal to zero? At this location (or these locations) is the potential also equal to zero? Explain your answer.

$$V_{ba} = V_b - V_a \equiv -\int_a^b \vec{E} \cdot d\vec{\ell} \quad \vec{E} = -\vec{\nabla}V$$



$$E = -\frac{dV}{dx} = 0 \quad \text{WHEN } x \approx 4.3 \text{ m}$$

$$V \neq 0 \quad \text{WHEN } E = 0 \quad (V \approx -1 \text{ V})$$

$$V = 0 \quad \text{AT } x = 2 \text{ \& } 7.1 \text{ m}$$