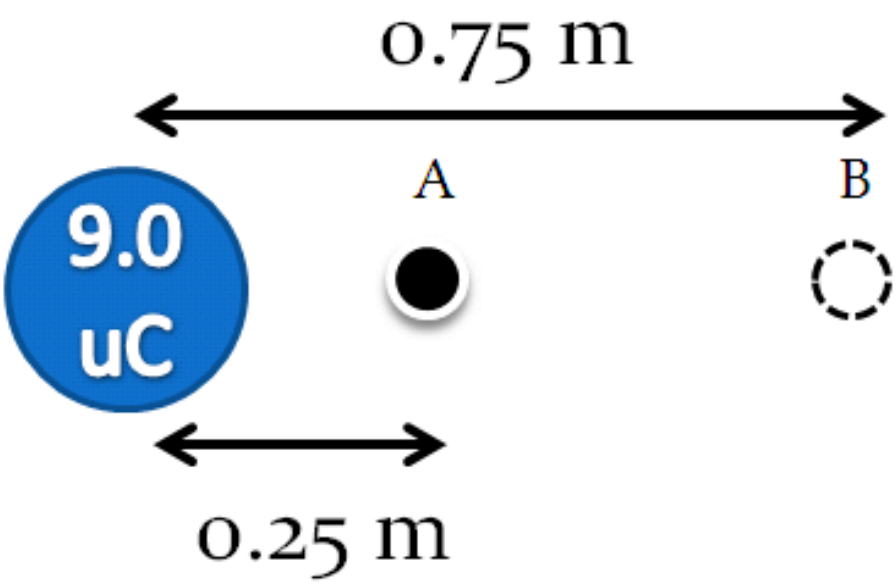
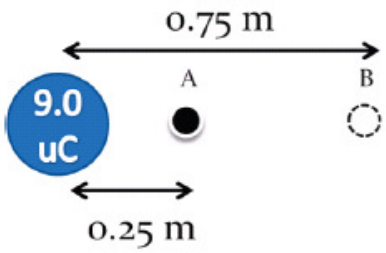
A proton is released from rest at point A near a fixed 9.0 uC charge. How fast is the proton moving when it reaches point B?





$$\Delta E_p = E_{pf} - E_{pi} = \frac{kq_1q_2}{r_B} - \frac{kq_1q_2}{r_A}$$

$$= 1.728\times10^{-14} - 5.184\times10^{-14}$$

$$= -3.456\times10^{-14}\ \text{J}$$

$$\Delta E_K = -\Delta E_p = 3.456\times10^{-14}\ \text{J}$$

$$\Delta E_K = E_{K_f} = \tfrac{1}{2}mv_f^2$$

$$v_f = \sqrt{\frac{2E_{K_f}}{m}} = 6.43\times10^{6}\ \text{m/s}$$