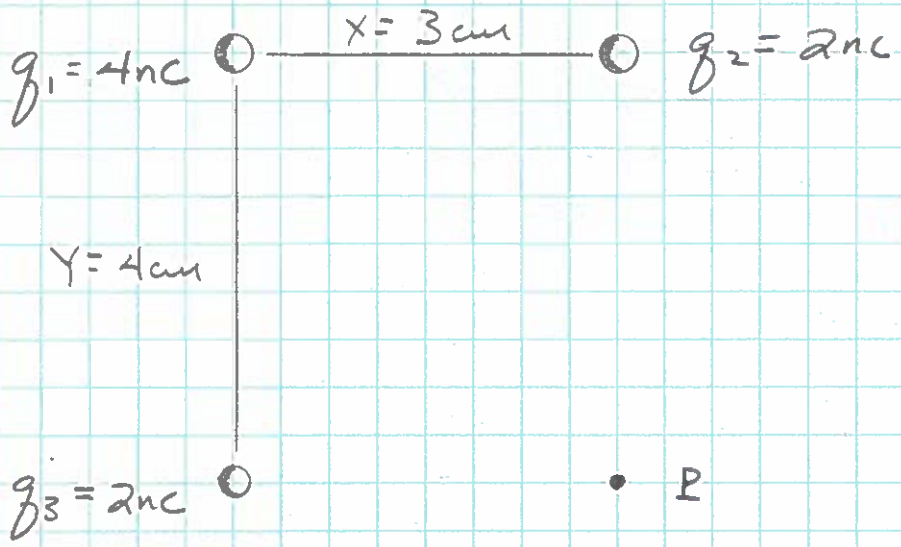

Potential at P:

$$V = \sum_i \frac{Kq_i}{r_i} = \frac{Kq_1}{r_1} + \frac{Kq_2}{r_2} + \frac{Kq_3}{r_3}$$

$r_2 = Y = 4cm$; $r_3 = X = 3cm$

$r_1 = \sqrt{X^2 + Y^2} = 5cm.$

$\therefore$ $V = 1768V$

Part b: What is the potential energy of an electron at P?

$U = qV = -eV = -2.829 \times 10^{-16}$ J.