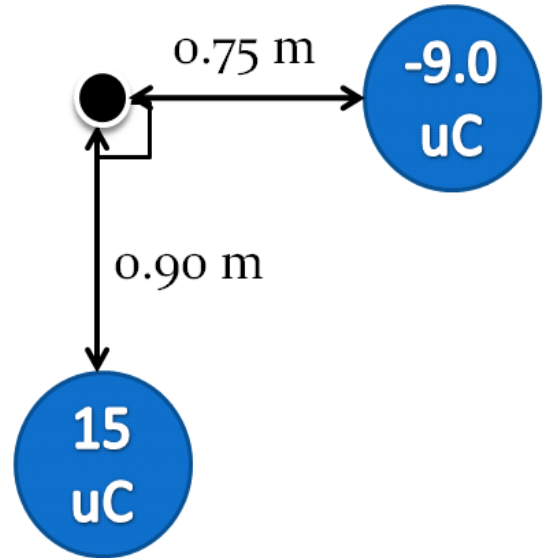


1.)

What is the electric potential energy of an electron located 7.6×10^{-11} m from a proton in a hydrogen atom?

2.)

What is the electric potential at the point P shown below?

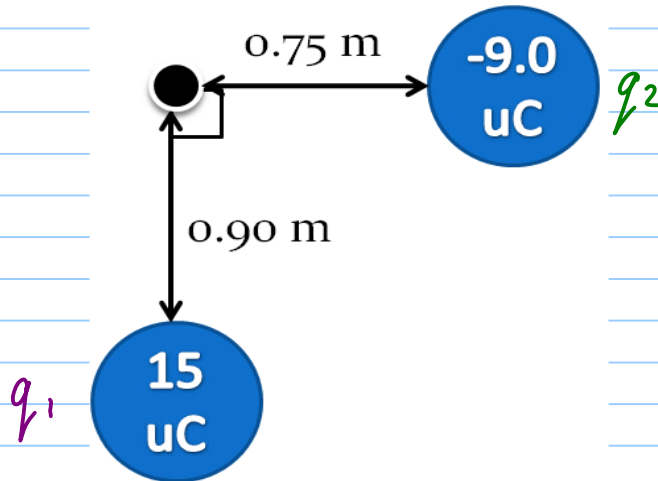


$$1.) E_p = \frac{k q_p q_e}{r} = \frac{(9 \times 10^9)(1.6 \times 10^{-19})(-1.6 \times 10^{-19})}{(7.6 \times 10^{-11})}$$

must be negative! *electron is negative!*

$$= -3.0 \times 10^{-18} \text{ J}$$

2.)



Potential is a scalar so no vector addition!

$$V_1 = \frac{k q_1}{r_1} = \frac{(9 \times 10^9)(15 \times 10^{-6})}{0.90} = 150\,000 \text{ V}$$

$$V_2 = \frac{k q_2}{r_2} = \frac{(9 \times 10^9)(-9 \times 10^{-6})}{0.75} = -108\,000 \text{ V}$$

$$V_T = V_1 + V_2 = 150\,000 + (-108\,000)$$

$$= \underline{42\,000 \text{ V}}$$