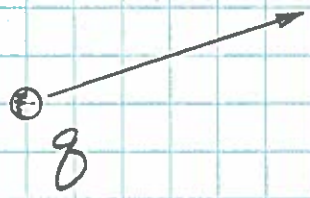
$\vec{E} = 400\hat{i} + 100\hat{j}\ \frac{N}{C}$



$\vec{F} = q\vec{E}$

a.) Proton, $q = +e$ $\qquad e = 1.6\times10^{-19}\,C$

$\vec{F}_p = e\vec{E} = 6.4\times10^{-17}\hat{i} + 1.6\times10^{-17}\hat{j}\ N$

b.) Electron, $q = -e$

$\vec{F}_e = -e\vec{E} = -6.4\times10^{-17}\hat{i} - 1.6\times10^{-17}\hat{j}\ N$

Newton's 2nd Law: $\vec{F} = m\vec{a}$

$$\vec{a} = \frac{\vec{F}}{m}$$

c.) Proton: $m_p = 1.67\times10^{-27}\,kg$

$\vec{a} = \frac{\vec{F}_p}{m_p} = 3.832\times10^{10}\hat{i} + 9.581\times10^{9}\hat{j}\ \frac{m}{s^2}$

$|\vec{a}| = \sqrt{a_x^2 + a_y^2} = 3.95\times10^{10}\ \frac{m}{s^2}$

d.) Electron: $m_e = 9.11\times10^{-31}\,kg$

$\vec{a} = \frac{\vec{F}_e}{m_e} = -7.025\times10^{13}\hat{i} - 1.756\times10^{13}\hat{j}\ \frac{m}{s^2}$

$|\vec{a}| = \sqrt{a_x^2 + a_y^2} = 7.241\times10^{13}\ \frac{m}{s^2}$