Electric Fields Worksheet #3

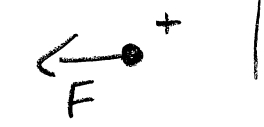
(1) C (2) B (3) D (4) D (5) C

(6) D

$F = qE = (4.8 \times 10^{-16})(500)$

$= 2.4 \times 10^{-13}$ N left

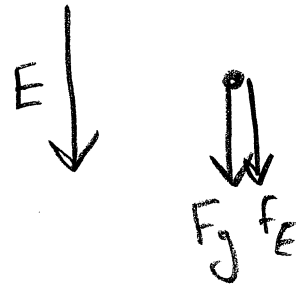
(7) A



$E = \frac{F}{q} = \frac{2.5 \times 10^{-10}}{6.4 \times 10^{-19}}$

$= 3.9 \times 10^{8}$ N/C left

(8)



$F_g + f_E = ma$

$mg + qE = ma$

$a = \frac{mg + qE}{m} = \frac{(2 \times 10^{-6})9.8 + (3 \times 10^{-9})(5000)}{2 \times 10^{-6}}$

$a = 17.3$ m/s^2 down

(9)

$T - F_E - F_g = ma^{\,0}$

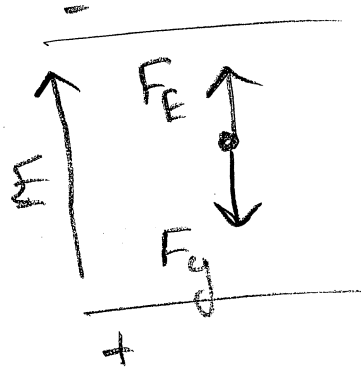
$T = mg + qE$

$= (1\times10^{-3})(9.8) + (4\times10^{-6})(2000)$

$= 0.0178$

$T = 0.02\ N$

(10)



$F_E - F_g = ma^{\,0}$

$F_E = F_g$

$qE = mg$

$q = \frac{mg}{E} = \frac{(.120)(9.8)}{240}$

$q = 4.9\times10^{-3}\ C$