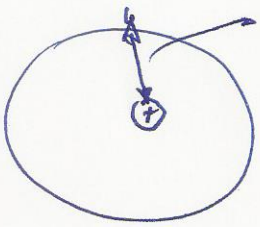
24-Noviembre-2016

$|q_{e^-}| = |q_{p^+}| = 1{,}6 \cdot 10^{-19}\ C$

$\neq$ .95

16.-

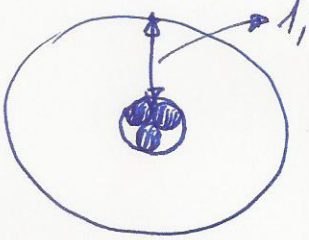


$$F = \frac{9 \cdot 10^9 \cdot (1{,}6 \cdot 10^{-19})^2}{(5 \cdot 10^{-11})^2} = 9{,}22 \cdot 10^{-8}\ N$$

———— o ————

17.-

$$F = \frac{9 \cdot 10^9 \cdot (3 \cdot 1{,}6 \cdot 10^{-19})(1{,}6 \cdot 10^{-19})}{1{,}2 \cdot 10^{-10}} = 4{,}8 \cdot 10^{-8}\ N$$



$q_{electrón} = -1{,}6 \cdot 10^{-19}\ C$

$q_{protón} = +1{,}6 \cdot 10^{-19}\ C$

———— o ————

18.-

$$F = \frac{9 \cdot 10^9}{80} \cdot \frac{750 \cdot 10^{-12} \cdot 270 \cdot 10^{-12}}{d^2} = 9 \cdot 10^{-9}$$

$$d = \sqrt{\frac{1{,}13 \cdot 10^8 \cdot 750 \cdot 10^{-12} \cdot 270 \cdot 10^{-12}}{9 \cdot 10^{-9}}} = 0{,}05\ m$$

———— o ————

19.-

$$F = \frac{9 \cdot 10^9 \cdot |Q| \cdot 150 \cdot 10^{-9}}{10^2} = 2{,}7 \cdot 10^{-6}$$

$$|Q| = \frac{2{,}7 \cdot 10^{-6} \cdot 10^2}{9 \cdot 10^9 \cdot 150 \cdot 10^{-9}} = 2 \cdot 10^{-7}\ C$$

Si es atraída por una Q positiva $\longrightarrow$ $Q = -2 \cdot 10^{-7}\ C$

20.- $Q_1 = +12\,\mu C$

$Q_2 = +64\,\mu C$

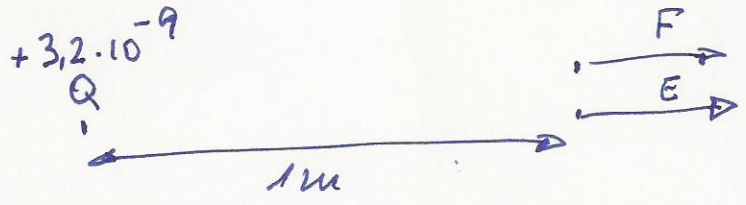
$d = 0{,}5\,m$

$$F = 9\cdot10^9 \cdot \frac{12\cdot10^{-6}\cdot 64\cdot10^{-6}}{0{,}5^2} = 27{,}65\,N$$

$$\frac{27{,}65}{2} = 13{,}825 = 9\cdot10^9 \cdot \frac{12\cdot10^{-6}\cdot 64\cdot10^{-6}}{d^2}$$

$$d = \sqrt{\frac{9\cdot10^9 \cdot 12\cdot10^{-6}\cdot 64\cdot10^{-6}}{13{,}85}} = 0{,}70\,m$$

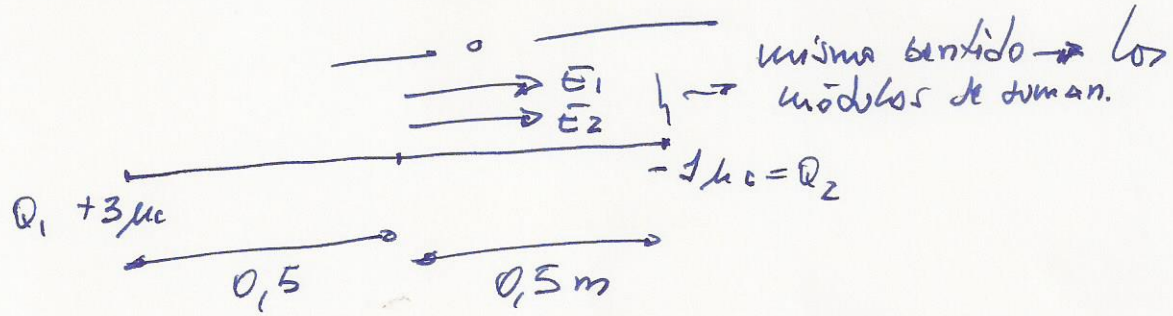
21.-



$$E = \frac{9\cdot10^9 \cdot 3{,}2\cdot10^{-9}}{1} = 28{,}8\,N/C$$

$$F = Q\cdot E = 1\cdot10^{-6}\cdot 28{,}8 = 2{,}88\cdot10^{-5}\,N$$

22.-



$$E_1 = \frac{9\cdot10^9 \cdot 3\cdot10^{-6}}{0{,}5^2} = 1{,}08\cdot10^5\,\frac{N}{C} \qquad E_2 = \frac{9\cdot10^9 \cdot 1\cdot10^{-6}}{0{,}5^2} = 3{,}6\cdot10^4\,\frac{N}{C}$$

$$E = |E_1| + |E_2| = 1{,}44\cdot10^5\,\frac{N}{C}$$ hacia la derecha