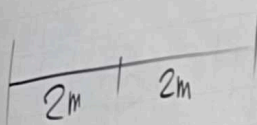
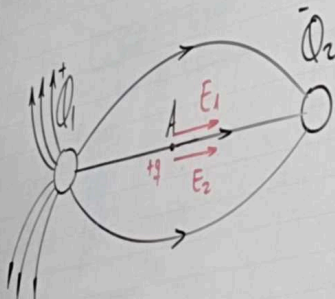




Dato: $E_A = 27 \frac{N}{C}$

9)



$$\frac{Q_1}{\# \text{ LINES STATION}} = \frac{Q_2}{\# \text{ LINES ENTRANCE}}$$

$$\frac{Q_1}{9} = \frac{Q_2}{3} \rightarrow Q_1 = 3Q_2$$

2) $E_1 + E_2 = E_A$

$$\frac{kQ_1}{d^2} + \frac{kQ_2}{d^2} = 27$$

$$\frac{9 \times 10^9 (3Q_2)}{2^2} + \frac{9 \times 10^9 Q_2}{2^2} = 27$$

$$\frac{36 \times 10^9 Q_2}{4} = 27$$

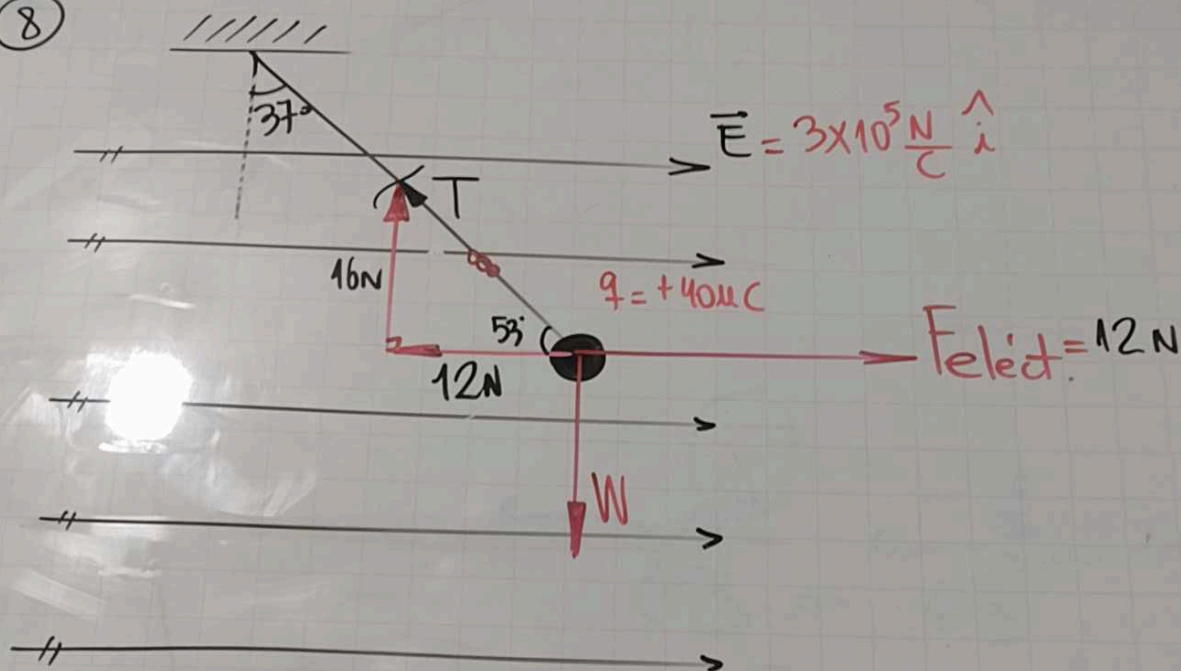
$$Q_2 = \frac{3}{10^9}$$

$$Q_2 = 3 \times 10^{-9} C$$

$$Q_2 = 3nC$$

$$\therefore Q_1 = 3(3nC) = 9nC$$

(8)



$$F_{\text{elect.}} = |q| \cdot E = (40 \times 10^{-6}) (3 \times 10^5) = 12 \text{ N}$$

$$\vec{T} = (-12 \hat{i} + 16 \hat{j}) \text{ N}$$

$$E_1 + E_2 = EA$$

$$\frac{kQ_1}{d^2} + \frac{kQ_2}{d^2} = 27$$

$$\frac{9 \times 10^9 (3Q_2)}{2^2} + \frac{9 \times 10^9 Q_2}{2^2} = 27$$

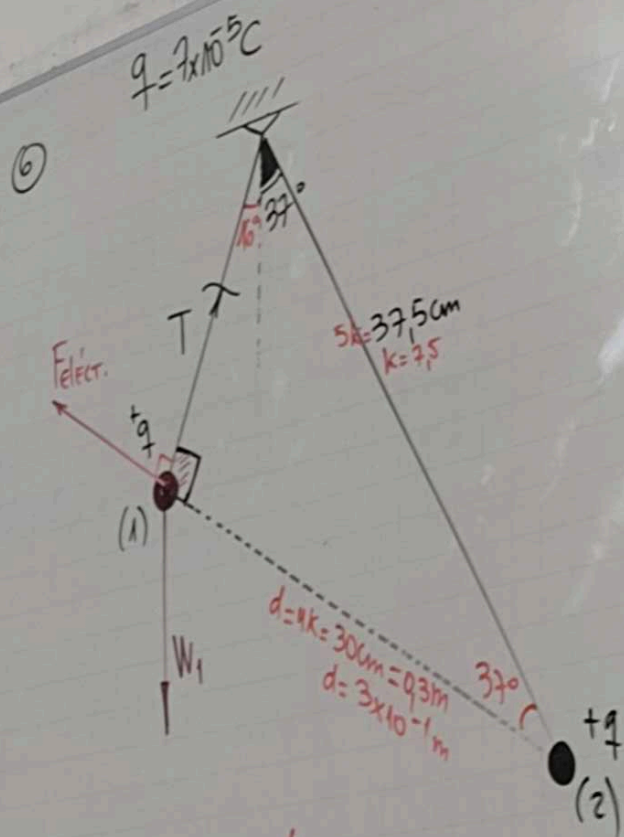
$$\frac{6 \times 10^9 Q_2}{4} = 27$$

$$Q_2 = \frac{3}{10}$$

$$Q_2 = 3 \times 10^{-9} \text{ C}$$

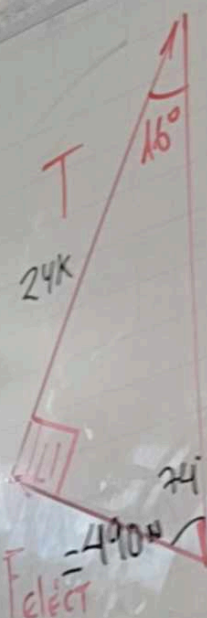
$$Q_2 = 3 \text{ nC}$$

$$Q_2 = 3(3 \text{ nC}) = 9 \text{ nC}$$



$$F_{\text{elect.}} = \frac{k |q_1| |q_2|}{d^2} = \frac{9 \times 10^9 \times 7 \times 10^{-5} \times 7 \times 10^{-5}}{9 \times 10^{-2}} = 49 \times 10^1$$

$$F_{\text{elect.}} = 490 \text{ N}$$



$$W_1 = 25 \text{ K}$$

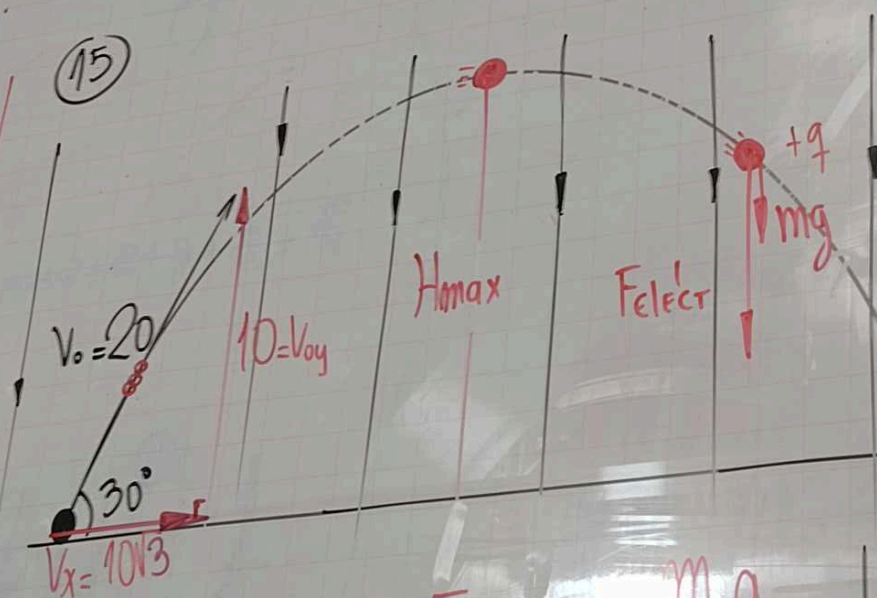
$$= 25(70)$$

$$= 1750 \text{ N}$$

$$7 \text{ K} = 490$$

$$K = 70$$

(15)



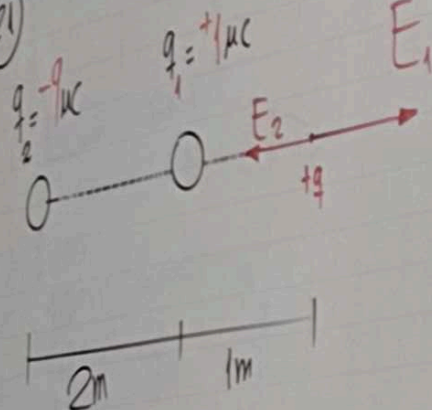
$$\begin{aligned}
 1) \quad H_{max} &= \frac{V_{0y}^2}{2a} \\
 &= \frac{10^2}{2(25)} \\
 &= \frac{2m}{\cancel{1}}
 \end{aligned}$$

$$\begin{aligned}
 2) \quad F_{RESULTANTE} &= m \cdot a \\
 F_{ELECT.} + mg &= ma \\
 |q| \cdot E + mg &= ma \\
 \frac{|q| \cdot E}{m} + g &= a
 \end{aligned}$$

$$\begin{aligned}
 \frac{10 \times 1500}{10^{-3}} + 10 &= a \\
 a &= 25 \frac{m}{s^2}
 \end{aligned}$$

6

(21)



- ✓ $|Q| = |e| \cdot n$
- ✓ $\sum q_{\text{initial}} = \sum q_{\text{final}}$
- ✓ $F_e = \frac{k|q_1| \cdot |q_2|}{d^2}$
- ✓ $E = \frac{k|Q|}{d^2}$
- ✓ $F_e = |q| \cdot E$

$F_{\text{elect.}}$

$$E_1 = \frac{k|Q_1|}{d^2} = \frac{9 \times 10^9 \times 10^{-6}}{1^2} = 9000 \frac{\text{N}}{\text{C}}$$

$$E_2 = \frac{k|Q_2|}{d^2} = \frac{9 \times 10^9 \times 9 \times 10^{-6}}{3^2} = 9000 \frac{\text{N}}{\text{C}}$$

$$F_{\text{elect.}} = k$$

$$E_{\text{result.}} = E_2 - E_1 = 0$$