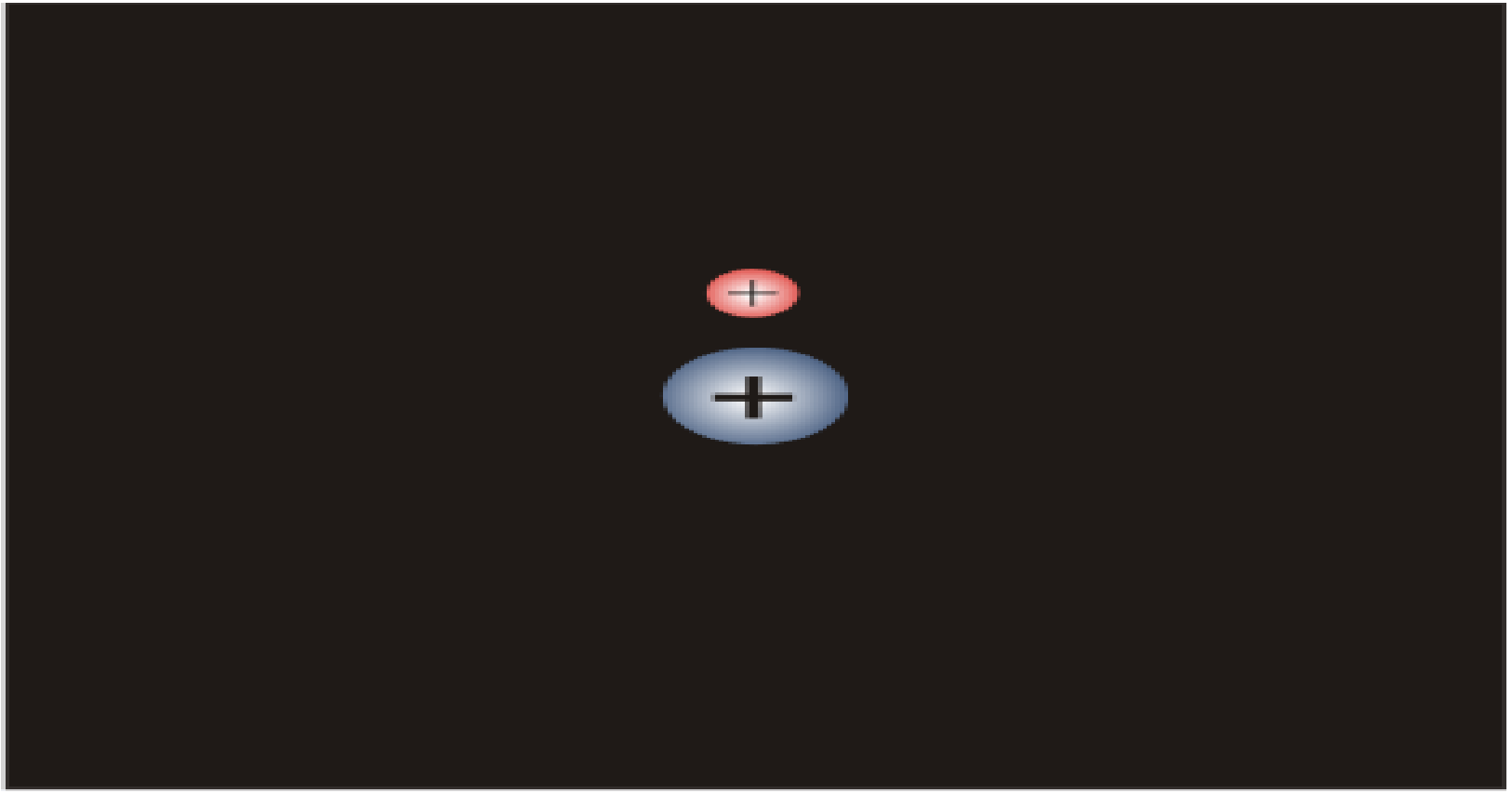
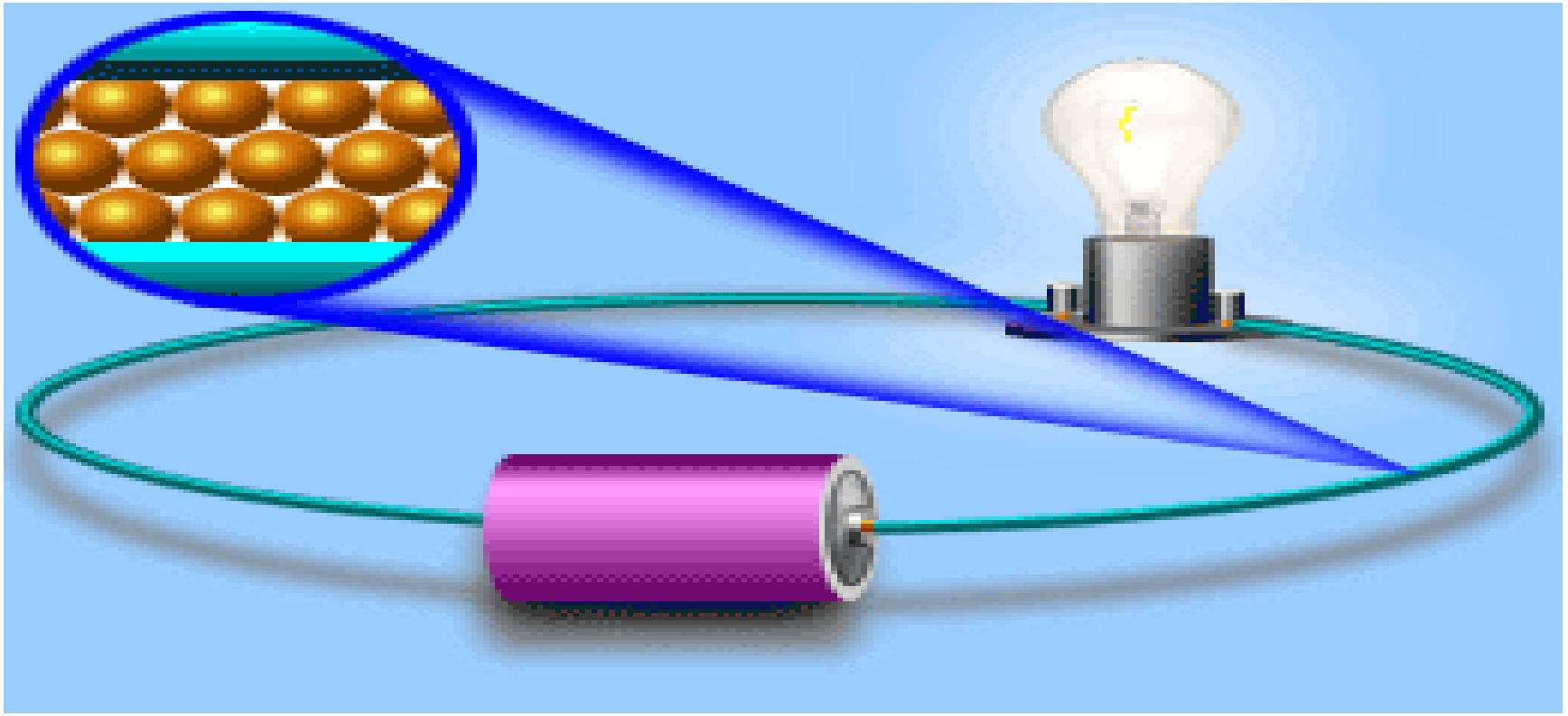
FISICA GRADO 11°

Potencial Eléctrico



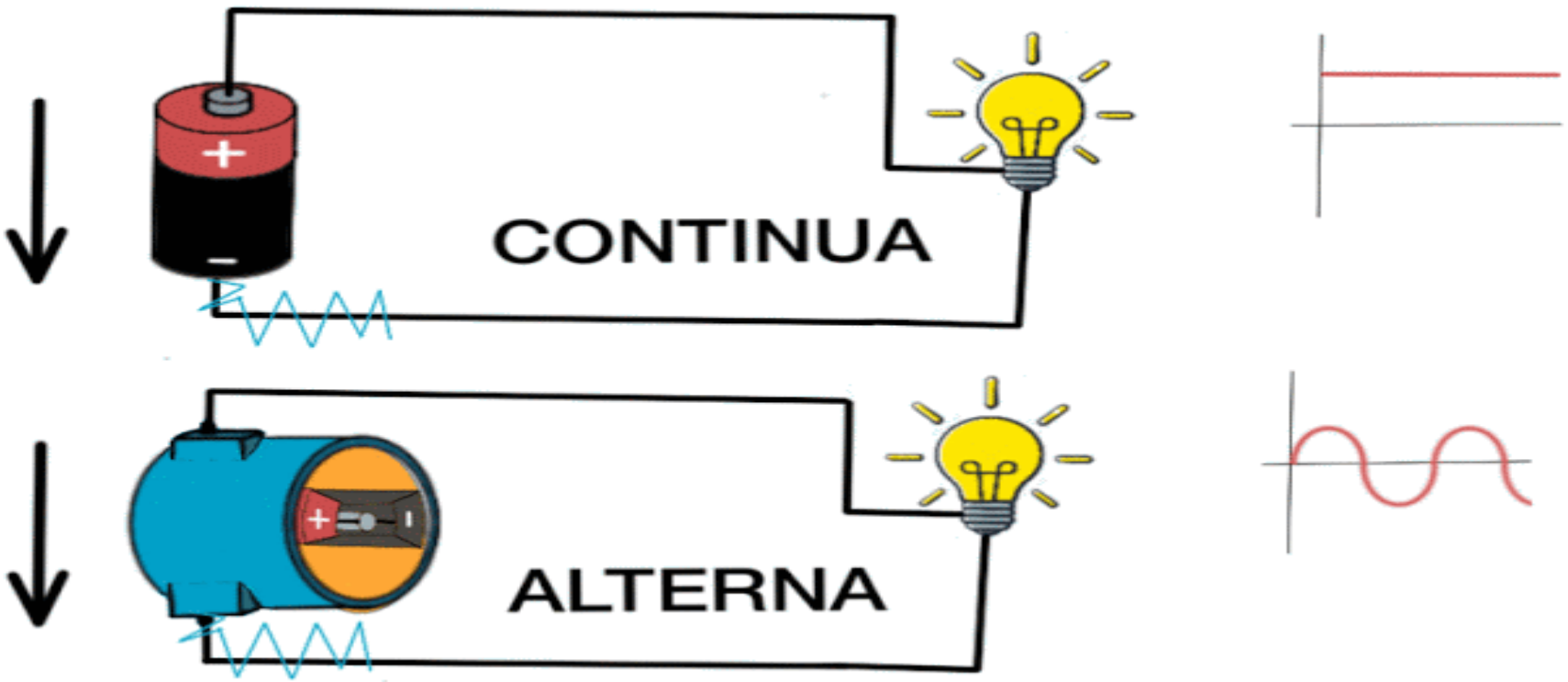
FISICA GRADO 11°

Potencial Eléctrico



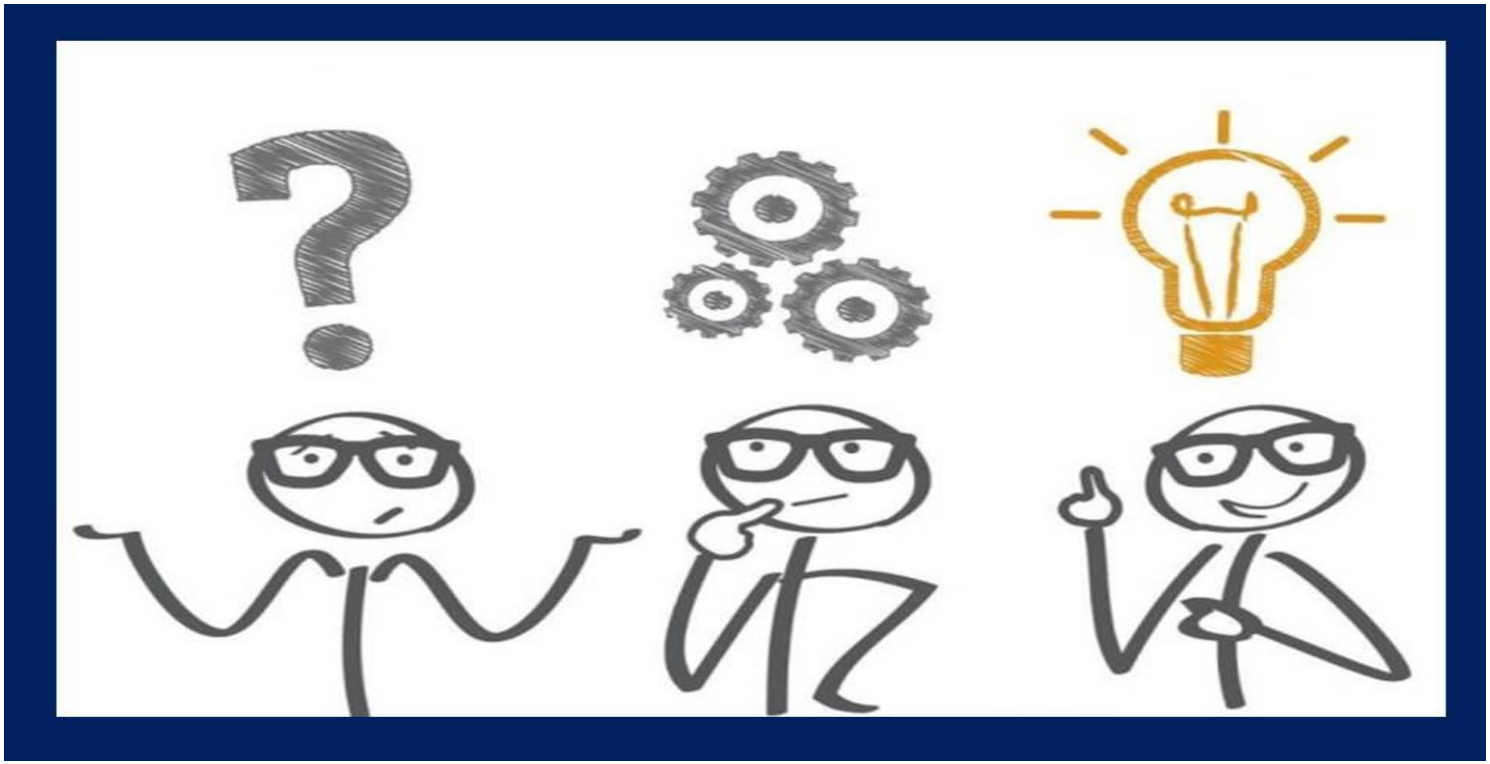
FISICA GRADO 11°

Potencial Eléctrico



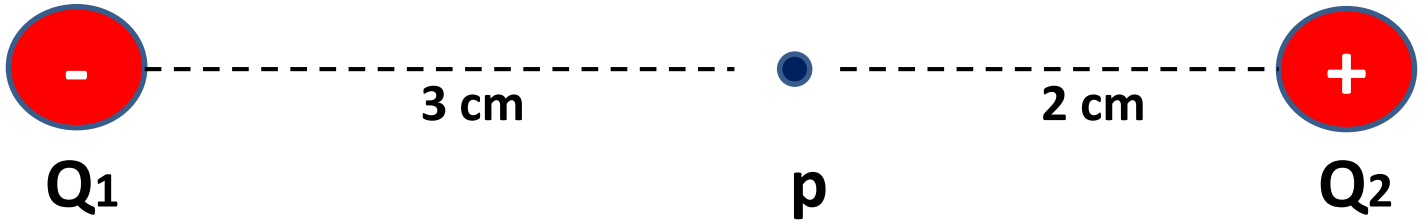
FISICA GRADO 11°

Problemas de Aplicación



Tema Potencial Eléctrico

Dos cargas Q_1 y Q_2 se encuentran sobre una misma recta como indica la figura.



Donde

$Q_1 = -4 \times 10^{-8}$ C

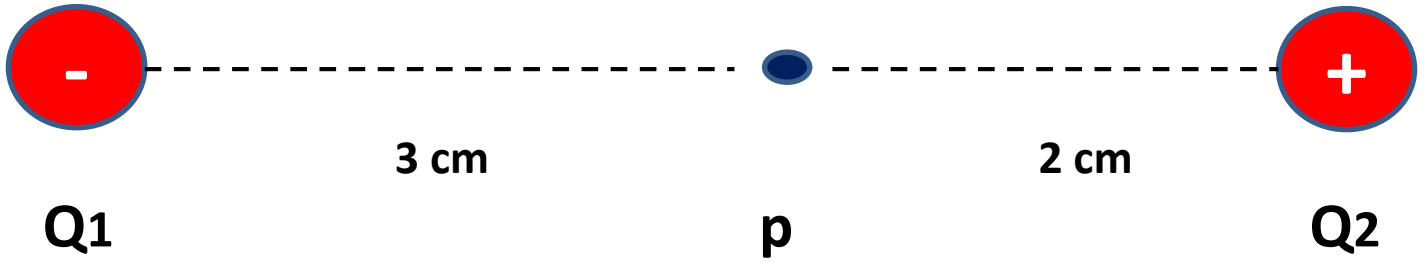
$Q_2 = 3 \times 10^{-8}$ C

Determinar el Potencial Eléctrico sobre el punto p

Aplicamos la Formula de Coulomb.

$$V = \frac{k \cdot Q}{d}$$

$K = 9 \times 10^9$ N. m^2/c^2 Constante de proporcionalidad

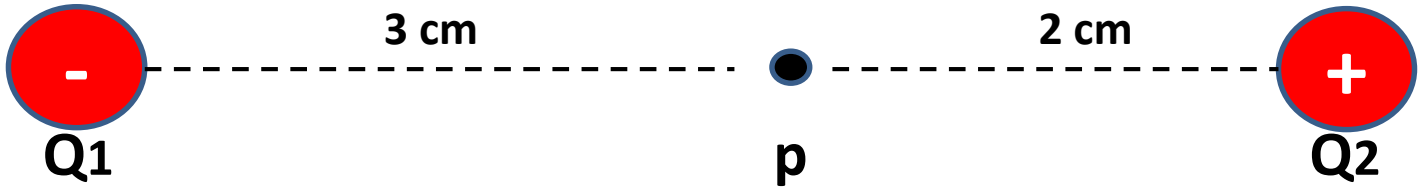


1. Hallamos el Potencial Eléctrico en el punto p

$Q_1 = -4 \times 10^{-8}$ C $\qquad$ $Q_2 = 3 \times 10^{-8}$ C

$$V = \frac{k \cdot Q}{d}$$

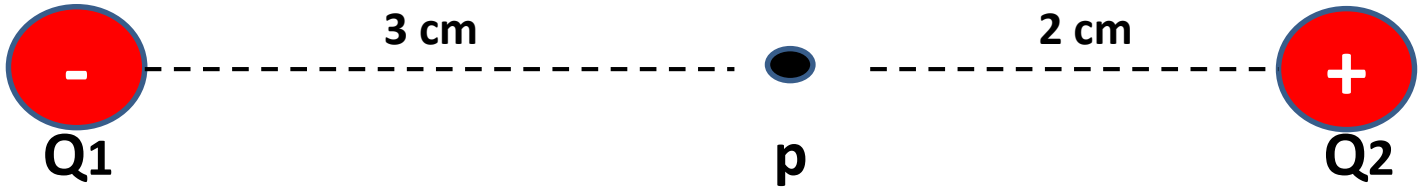
$K = 9 \times 10^9$ N. m^2/c^2 Constante de proporcionalidad



$$V_1 = \frac{(9 \times 10^9 \text{ N. } m^2/c^2).(-4 \times 10^{-8} \text{ C})}{(3 \text{ cm})}$$

$$V = \frac{k \cdot Q}{d}$$

$K = 9 \times 10^9 \ N.\ m^2/c^2$ Constante de proporcionalidad

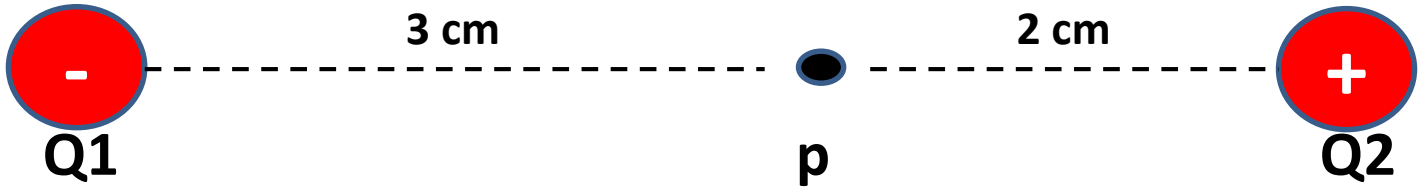


1 m = 100 cm 3 / 100 = 0,03 m

$$V_1 = \frac{(9 \times 10^9 \ N.\ m^2/c^2).(-4 \times 10^{-8} \ C)}{(0.03 \ m)}$$

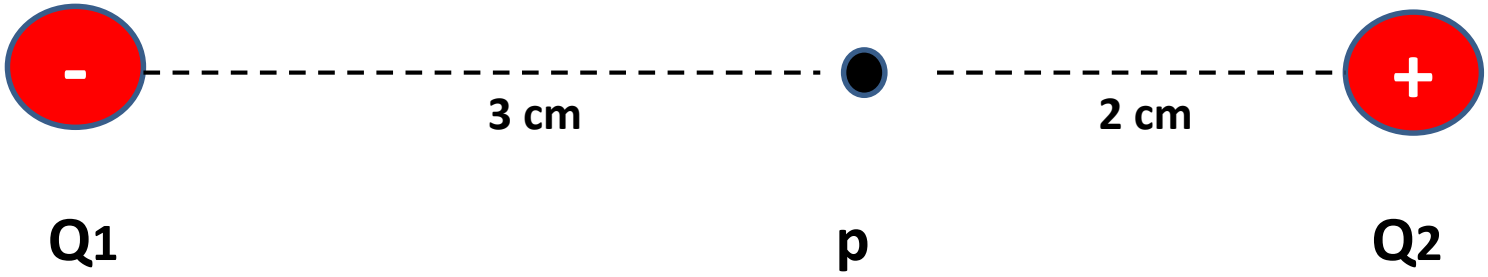
$$V = \frac{k \cdot Q}{d}$$

$K = 9 \times 10^9$ N. m^2/c^2 Constante de proporcionalidad



1 m = 100 cm 3 / 100 = 0,03 m ⟶ 3×10^{-2} m

$$V_1 = \frac{(\ 9 \times 10^9\ \text{N. m}^2/\text{c}^2\ ).(\ -4 \times 10^{-8}\ \text{C}\ )}{(\ 3 \times 10^{-2}\ \text{m}\ )}$$



$$V_1 = \frac{(\ 9 \times 10^{9}\ \ N.\ m^2/c^2\ ).(\ -4 \times 10^{-8}\ C\ )}{(\ 3 \times 10^{-2}\ \ m\ )}$$

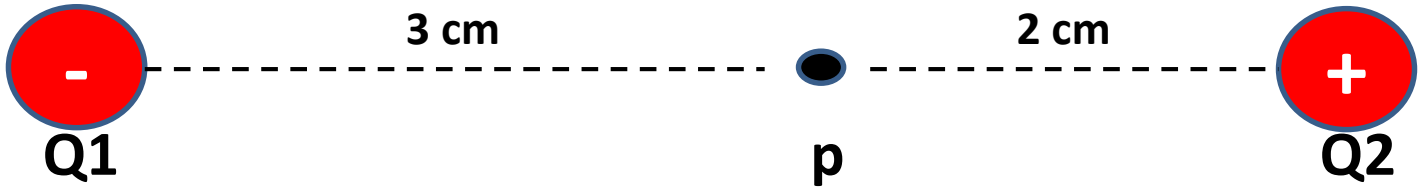
$$V_1 = \ - \frac{36 \times 10^{1}\ New\ .m^2\ /C}{3 \times 10^{-2}\ m}$$

$$V_1 = -12 \times 10^{1}\ .\ 10^{2}\ \ New\ .\ m/C$$

$$V_1 = -12 \times 10^{3}\ \ New\ .\ m/C \longrightarrow E_1 = -12 \times 10^{3}\ \ voltios$$

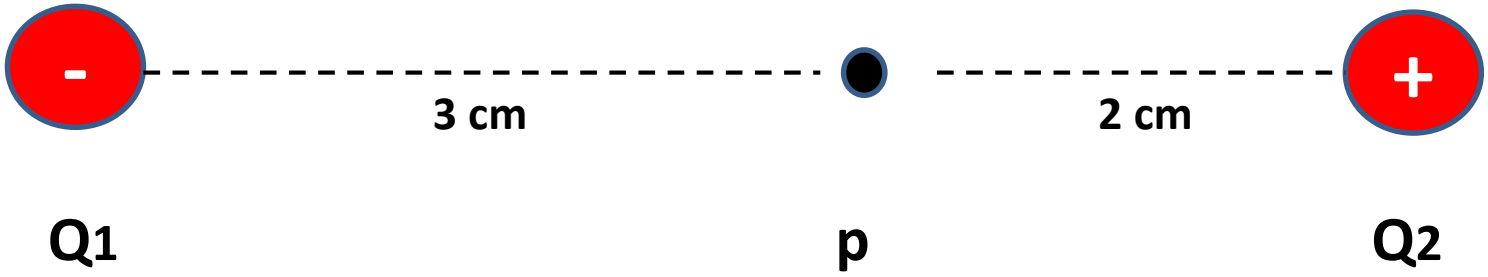
$$V = \frac{k \cdot Q}{d}$$

$K = 9 \times 10^9 \ N.m^2/c^2$ Constante de proporcionalidad



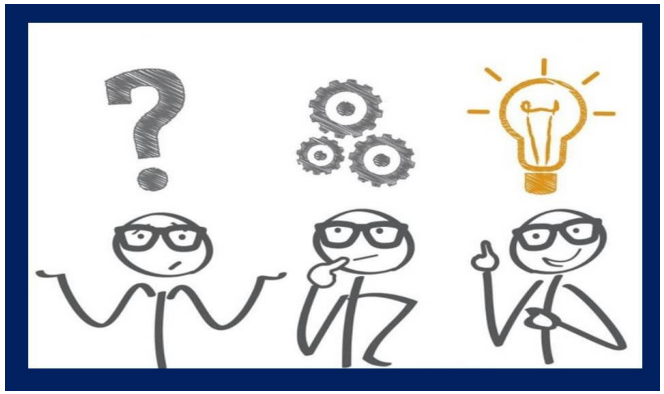
1 m = 100 cm 2 / 100 = 0,02 m ⟶ 2×10^{-2} m

$$V_2 = \frac{(9 \times 10^9 \ N.m^2/c^2).(3 \times 10^{-8} \ C)}{(2 \times 10^{-2} \ m)}$$



$$V_2 = \frac{(\ 9 \times 10^{9}\ \ N.\ m^2/c^2\ ).(\ 3 \times 10^{-8}\ C\ )}{(\ 2 \times 10^{-2}\ \ m\ )}$$

$$V_2 = \frac{27 \times 10^{1}\ New\ .\ m^2\ /c}{2 \times 10^{-2}\ m}$$

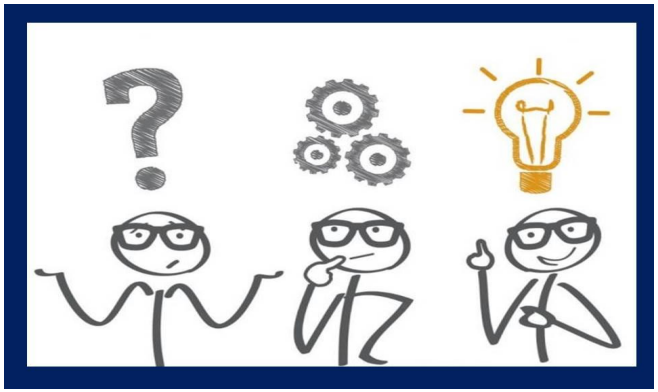


$$V_2 = 27/2 \times 10^{1}\ .\ 10^{2}\ \ New\ .\ m/c$$

$$V_2 = 13{,}5 \times 10^{3}\ \ New\ .\ m/c \quad \Rightarrow \quad V_2 = 13{,}5 \times 10^{3}\ Voltios$$

Q1 p Q2

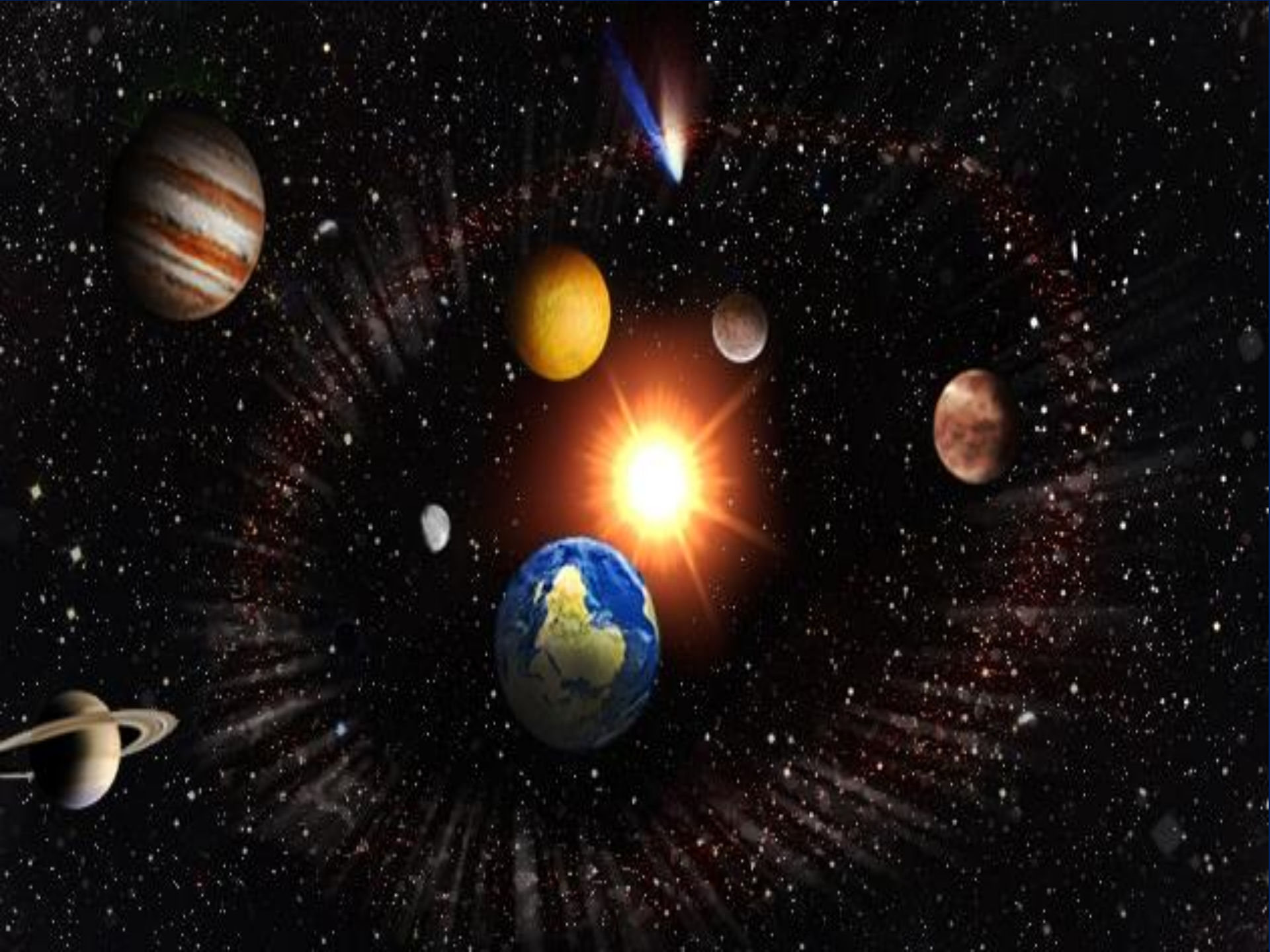
Hallamos el Potencial Eléctrico Total

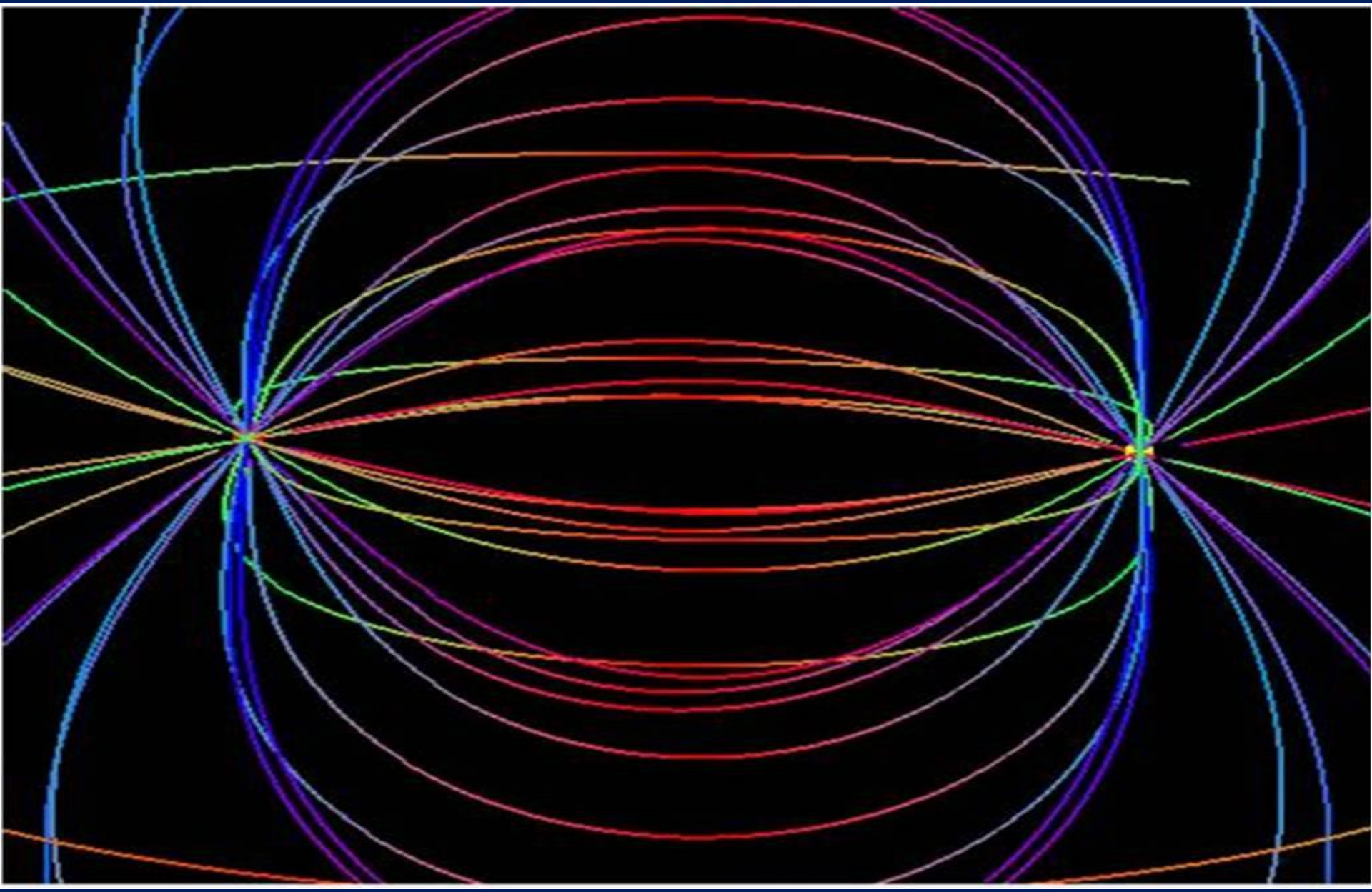


$V_t = V_1 + V_2$

$V_t = (-12 \times 10^3 \text{ voltios}) + (13{,}5 \times 10^3 \text{ Voltios})$

$V_t = 1{,}5 \times 10^3 \text{ Voltios}$





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