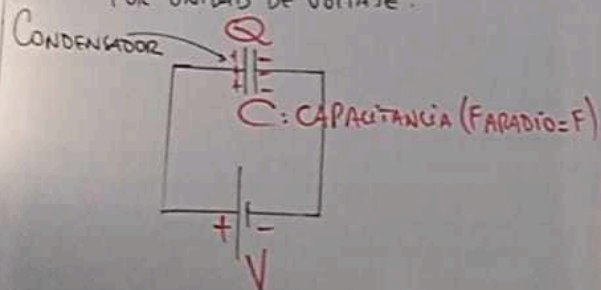


CAPACIDAD Eléctrica

PROPIEDAD QUE POSEEN LOS CONDUCTORES, PARA ACUMULAR CARGA ELÉCTRICA.

CAPACITANCIA ELÉCTRICA (C)

MIDE LA CARGA ELÉCT. ACUMULADA POR UNIDAD DE VOLTAGE.

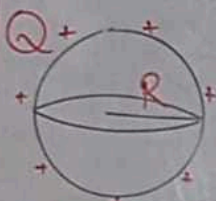


$$C = \frac{Q}{V} \rightarrow Q = C \cdot V$$

Q : CARGA ELÉCT. ACUMULADA (COULOMB=C)

V : VOLTAGE O DIFERENCIA DE POTENCIAL (VOLTIO=V)

CAPACITANCIA DE LA ESFERA CONDUCTORA

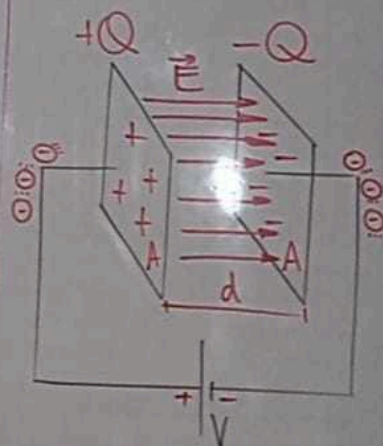


$$C = \frac{R}{k_e}$$

$$k_e = 9 \times 10^9 \frac{m}{F}$$

$$C \xrightarrow{DP} R$$

CAPACITANCIA DEL CONDENSADOR PLANO:



$$C_{\text{AIRE VACIO}} = \frac{\epsilon_0 \cdot A}{d}$$

ϵ_0 : PERMIVIDAD ELÉCTRICA EN EL VACIO.

$$\epsilon_0 = 8,85 \times 10^{-12} \frac{F}{m}$$

d : DISTANCIA (m)

A : ÁREA DE LA PLACA (m²)

E : INTENSIDAD DEL CAMPO ELÉCT. ($\frac{V}{m}$)

$$V = d \cdot E$$

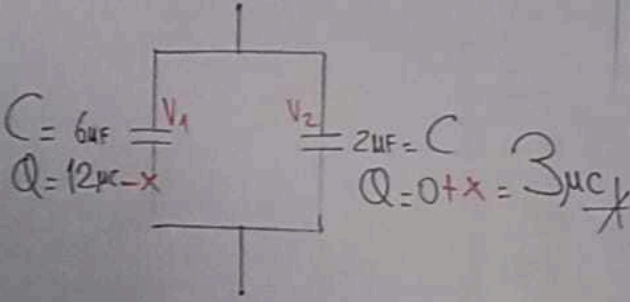
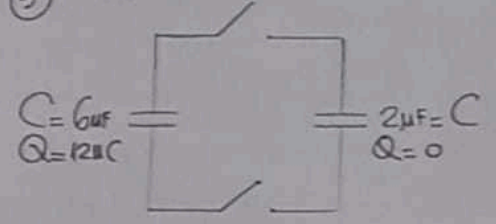
CAPACITANCIA DEL CONDENSADOR PLANO CON DIeléCTRICO:



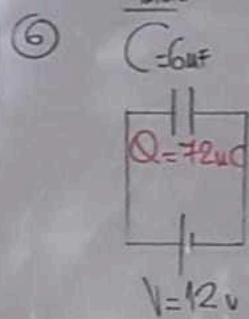
$$C_{\text{DIeléCTRICA}} = k_D \cdot C_{\text{VACIO}}$$

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TOSGARD

(5) $V = \frac{Q}{C}$

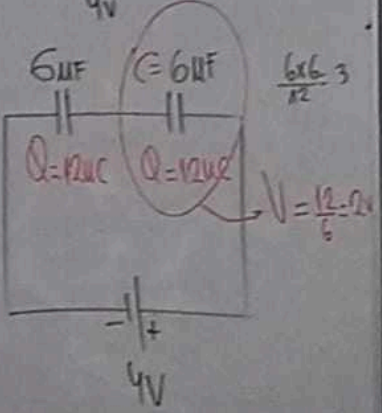
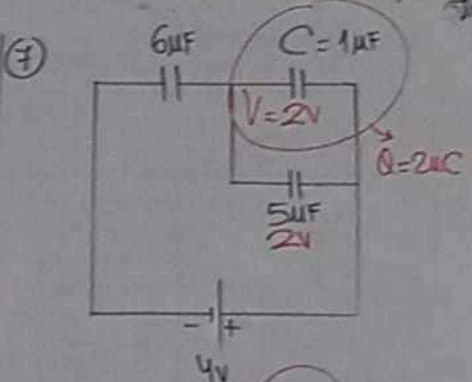


$V_1 = V_2$
 $\frac{12-x}{6} = \frac{x}{2} \rightarrow x=3$



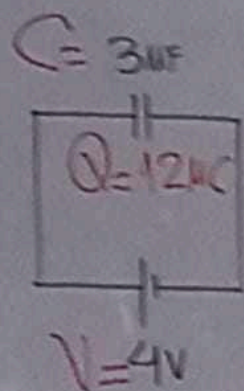
$Q = CV$
 $Q = 6(12)$
 $Q = 72\mu C$

Final
 $C = 6\mu F \times \frac{1}{5} = 9\mu F$
 $Q = 72\mu C$
 $V = \frac{Q}{C} = \frac{72}{9} = 8V$

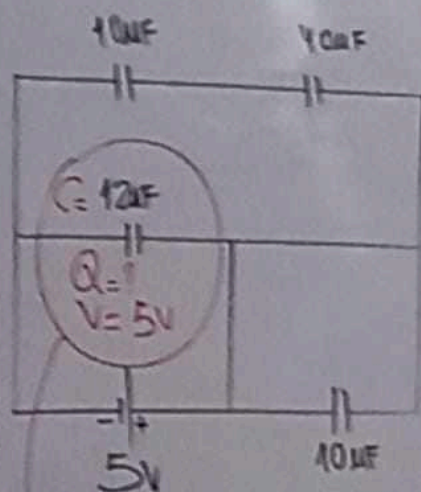


$C = 3$
 $Q =$
 $V =$

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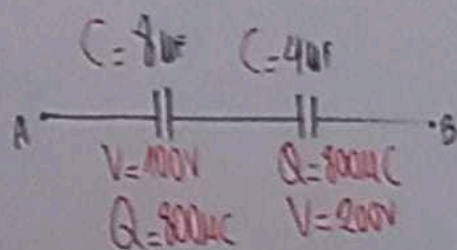
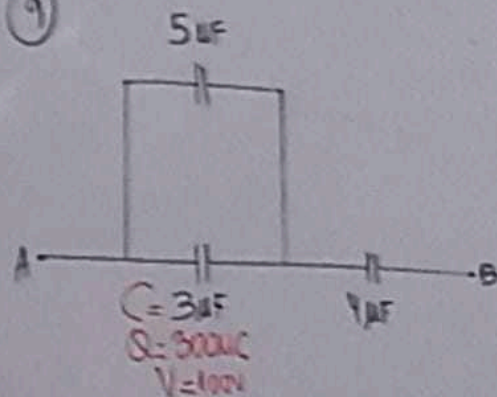
⑧



$Q = CV$

$Q = 12/5 = 60 \mu C$

⑨

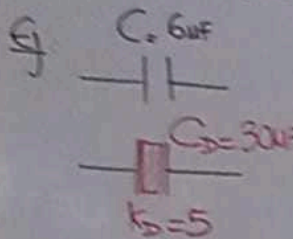


$\therefore V_{AB} = 100V + 200V$

$= 300V$

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k_d CONSTANTE DIELECTRICA > 1



ENERGIA ELECTRICA ACUMULADA (U)

$$U = \frac{1}{2} C V^2$$

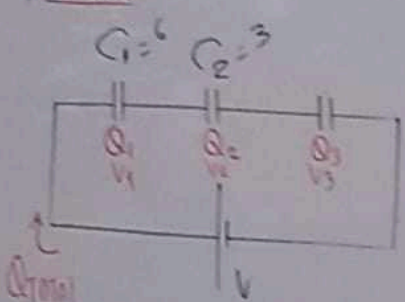
$$U = \frac{Q V}{2}$$

$$U = \frac{Q^2}{2C}$$

SI:
(Joule = J)

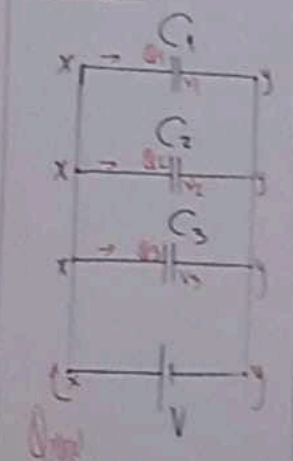
ASOCIACION DE CONDENSADORES

1) SERIE:



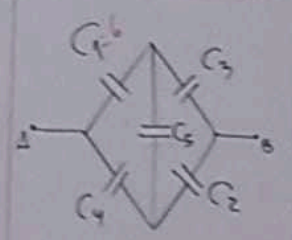
- ✓ $Q_1 = Q_2 = Q_3 = Q_{total}$
 - ✓ $V_1 + V_2 + V_3 = V$
 - ✓ $\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} = \frac{1}{C_{equivalente}}$
 - ✓ Si son 2 condens. en serie
- $$C_{equiv} = \frac{C_1 \times C_2}{C_1 + C_2}$$

2) Paralelo:



- ✓ $Q_1 + Q_2 + Q_3 = Q_{total}$
- ✓ $V_1 = V_2 = V_3 = V$
- ✓ $C_1 + C_2 + C_3 = C_{equivalente}$

PUENTE DE WENSTADT



Si: $C_1 \times C_2 = C_3 \times C_4$
→ C_5 se elimina