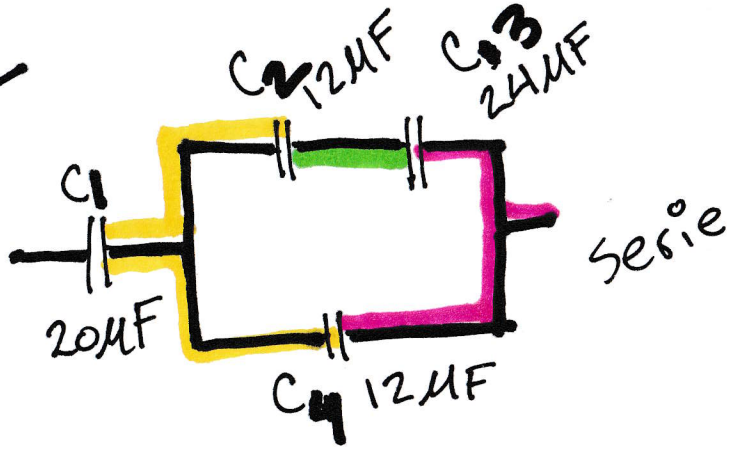
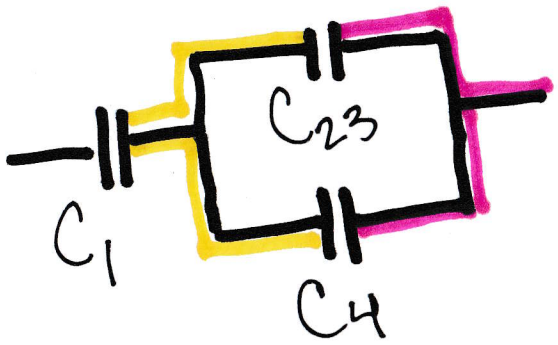
1.



$$C_{23} = \left(\frac{1}{C_2} + \frac{1}{C_3}\right)^{-1} = \left(\frac{1}{12} + \frac{1}{24}\right)^{-1} = 8\mu F$$

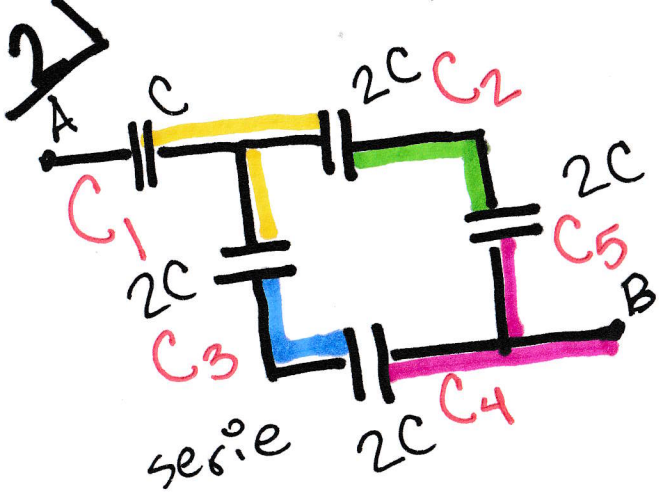


$$C_{234} = C_{23} + C_4 = 8 + 12 = 20\mu F$$

$$C_{eq} = \left(\frac{1}{C_1} + \frac{1}{C_{234}}\right)^{-1} = \left(\frac{1}{20} + \frac{1}{20}\right)^{-1} = 10\mu F$$

$C_{eq} = 10\mu F$

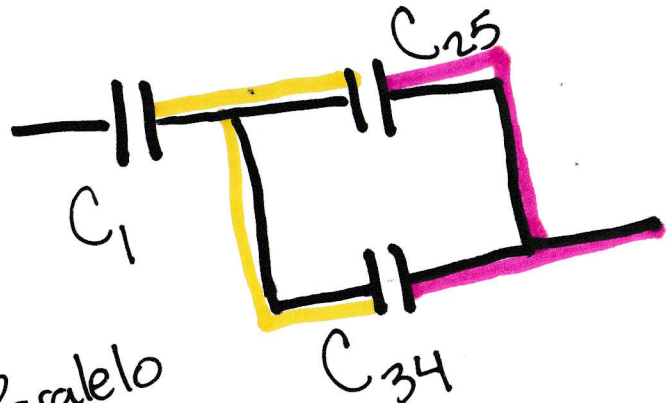
2)



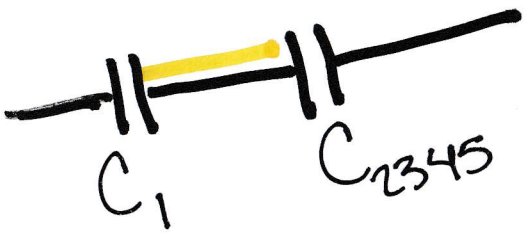
$C = 24\mu F$

$$C_{25} = \left(\frac{1}{C_2} + \frac{1}{C_5}\right)^{-1} = \left(\frac{1}{24} + \frac{1}{24}\right)^{-1} = 24\mu F$$

$$C_{34} = \left(\frac{1}{C_3} + \frac{1}{C_4}\right)^{-1} = \left(\frac{1}{24} + \frac{1}{24}\right)^{-1} = 24\mu F$$



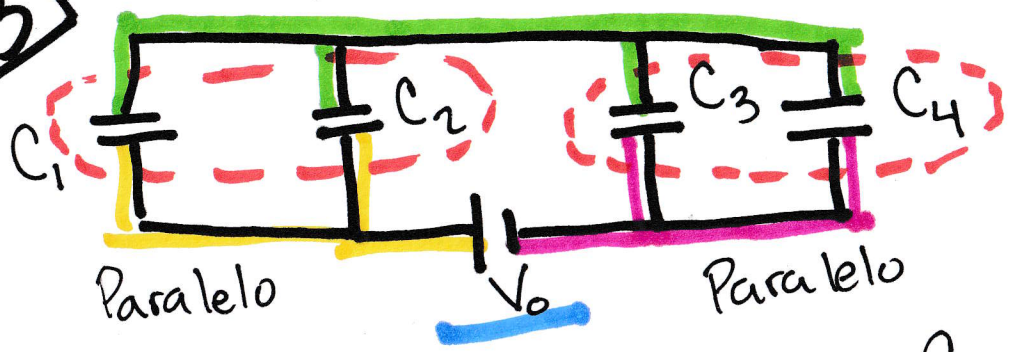
$$C_{2345} = C_{25} + C_{34} = 24 + 24 = 48\mu F$$



$$C_{eq} = \left(\frac{1}{C_1} + \frac{1}{C_{2345}}\right)^{-1} = \left(\frac{1}{24} + \frac{1}{48}\right)^{-1} = 16\mu F$$

$C_{eq} = 16\mu F$

3)



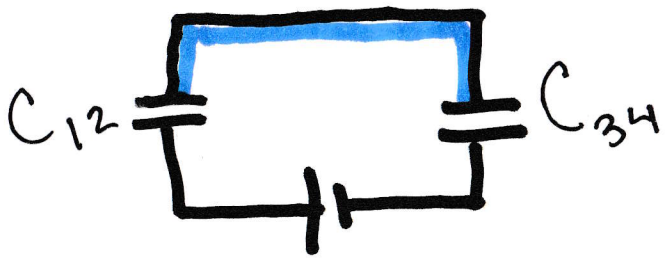
$C_1 = 50\mu F$ $\quad C_3 = 36\mu F$

$C_2 = 30\mu F$ $\quad C_4 = 12\mu F$

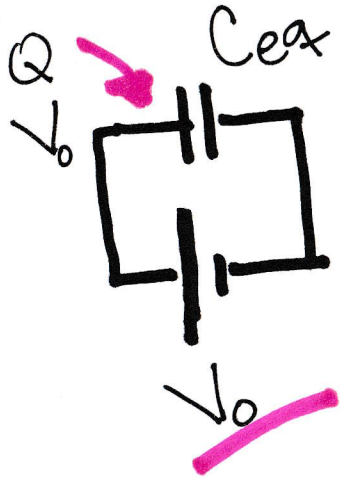
$V_o = 30V$

$$C_{34} = C_3 + C_4 = 36 + 12 = 48\mu F$$

$$C_{12} = C_1 + C_2 = 50 + 30 = 80\mu F$$



$$C_{eq} = \left(\frac{1}{C_{12}} + \frac{1}{C_{34}}\right)^{-1} = \left(\frac{1}{80} + \frac{1}{48}\right)^{-1} = 30\mu F$$

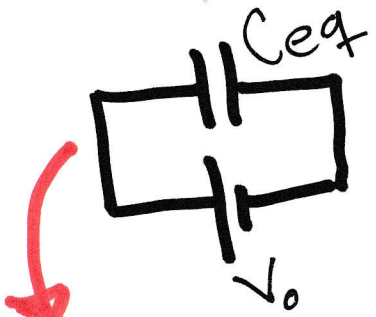


$$C_{eq} = \frac{Q}{V_o} \rightarrow Q = C_{eq} V_o$$

$$Q = (30 \times 10^{-6})(30) = 0.9 \times 10^{-3} C$$

$$Q \approx 0.9\,mC$$

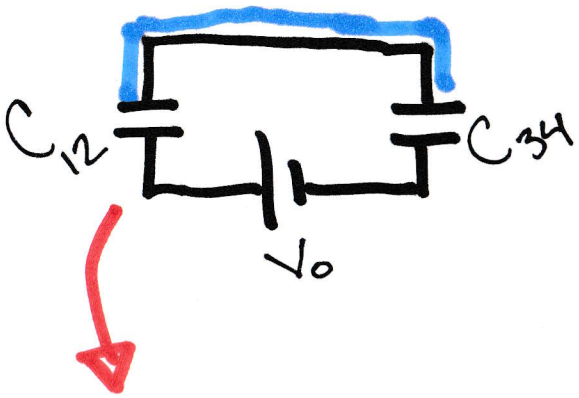
4)



$C_{eq} = 30\mu F$

$Q = 0.9\,mC$

$V_o = 30V$



en serie misma carga

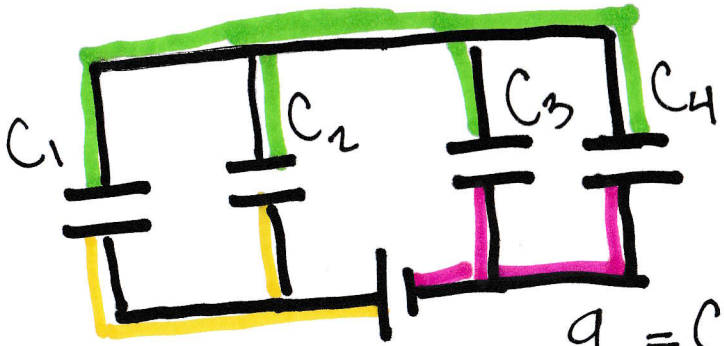
$Q = q_{34} = q_{12} = 0.9mC$

$C_{12} = 80\mu F$

$C_{34} = 48\mu F$

$C = \frac{Q}{V} \rightarrow V_{12} = \frac{q_{12}}{C_{12}} = \frac{(0.9 \times 10^{-3})}{80 \times 10^{-6}} = 11.25V$

$V_{34} = \frac{q_{34}}{C_{34}} = \frac{(0.9 \times 10^{-3})}{48 \times 10^{-6}} = 18.75V$



En Paralelo mismo Voltaje

$V_{34} = V_3 = V_4 = 18.75V$

$V_{12} = V_1 = V_2 = 11.25V$

$C_1 = 50\mu F$

$C_2 = 30\mu F$

$C_3 = 36\mu F$

$C_4 = 12\mu F$

$q_1 = C_1 V_1 = (50 \times 10^{-6})(11.25) = 0.563 \times 10^{-3} C$

$q_2 = C_2 V_2 = (30 \times 10^{-6})(11.25) = 0.3375 \times 10^{-3} C$

$q_3 = C_3 V_3 = (36 \times 10^{-6})(18.75) = 0.675 \times 10^{-3} C$

$q_4 = C_4 V_4 = (12 \times 10^{-6})(18.75) = 0.225 \times 10^{-3} C$