   We can treat circuits with capacitors in similar way to the circuits with resistors. We still find that voltages across parallel elements are the same. Now instead of having currents in series elements be the same, charges are the same. We can use a similar methodology where we reduce the sets of capacitors to an equivalent capacitance and use the ideas of series charge being the same and parallel voltages being the same. We can use the following set of equations.

   In this circuit, $C_1 = 2.0\mu F$, $C_2 = 1.0\mu F$, $C_3 = 3.0\mu F$, and V=20V.

$$Q = CV \qquad \frac{1}{C_{series}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$$

$$C_{||} = C_1 + C_2 + C_3$$
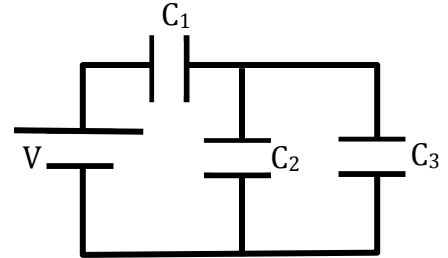
Begin by reducing C_2 and C_3 to an equivalent capacitance C_{23} and redraw the circuit.

Next reduce the remaining capacitors to one, C_{123}, and redraw the circuit.

   Now use the idea that series capacitors have the same charge and parallel capacitors have the same voltage to find the charge, Q, and the voltage, V, on each of the capacitors.

Summarize the capacitance, charge and voltage of each capacitor

$C_1 =$
$Q_1 =$
$V_1 =$

$C_2 =$
$Q_2 =$
$V_2 =$

C_1

$C_3 =$
$Q_3 =$
$V_3 =$

V

C_2

C_3