78. (a) The voltage across $C_1$ is 12 V, so the charge is
\[ q_1 = C_1 V_1 = 24 \mu C. \]

(b) We reduce the circuit, starting with $C_4$ and $C_3$ (in parallel) which are equivalent to 4 $\mu$F. This is then in series with $C_2$, resulting in an equivalence equal to $\frac{4}{3} \mu$F which would have 12 V across it. The charge on this $\frac{4}{3} \mu$F capacitor (and therefore on $C_2$) is $(\frac{4}{3} \mu F)(12 \text{ V}) = 16 \mu C$. Consequently, the voltage across $C_2$ is
\[ V_2 = \frac{q_2}{C_2} = \frac{16 \mu C}{2 \mu F} = 8 \text{ V}. \]

This leaves $12 - 8 = 4$ V across $C_4$ (similarly for $C_3$).