P #G

Ch 18 - Worksheet

$C = 400\,\mu F$
$R_1 = 20\,\Omega$
$R_2 = 10\,\Omega$

$V = 12\,V$

a) Find R_{eq}: (series)

$R_{eq} = R_1 + R_2$
$= (20\,\Omega) + (10\,\Omega)$

$R_{eq} = 30\,\Omega$

Find I_1

$V_{eq} = I_{eq} \cdot R_{eq}$
$12\,V = I_{eq} \cdot (30\,\Omega)$

$\boxed{I_{eq} = I_1 = .4\,A}$

b) Find V_2:

$V_2 = I_2 \cdot R_2$
$= (.4\,A)(10\,\Omega)$

$\boxed{V_2 = 4\,V}$

c) $V = V_2 = 4\,V$
$C = 400\,\mu F$

$C = \frac{Q}{V}$ so $400\,\mu F = \frac{Q}{4\,V}$

$\boxed{Q = 1600\,\mu C}$