P#32 Ch 18 - pg 581

a) $R = 100\,\Omega$
$C = 20.0 \times 10^{-6}\ F$

$\tau = R \cdot C$

$= (100\,\Omega)(20.0 \times 10^{-6}\ F)$

$\boxed{\tau = .002\ sec}$

b) $V = 9.0\ V$
$C = 20.0 \times 10^{-6}\ F$

$C = \frac{Q}{V}$ $\quad (20.0 \times 10^{-6}\ F) = \frac{Q}{9V}$

$\boxed{Q = 1.8 \times 10^{-4}\ C}$

c) $Q_{max} = 1.8 \times 10^{-4}\ C$

$Q = (.632)(1.8 \times 10^{-4}\ C)$ (63% charged after 1 time constant)

$\boxed{Q = 1.14 \times 10^{-4}\ C}$