P # J

Ch 16 - Worksheet

$C_1 = C_2 = C_3 = 2.0\,\mu F$

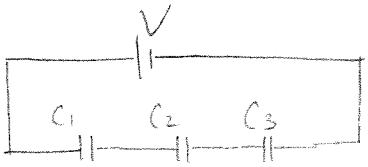
To increase C, use parallel circuits.

$C_{eq} = C_1 + C_2 + C_3$

$= (2.0\,\mu F) \cdot 3$

$C_{eq} = 6.0\,\mu F$

b) To decrease C, use series circuits

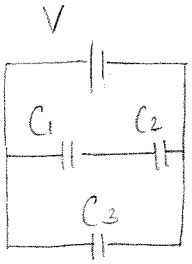


$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$

$C_{eq}^{-1} = 3 \cdot (2.0\,\mu F)^{-1}$

$C_{eq} = .66\,\mu F$

c) By trial & error, find a combination of series & parallel circuits



$\frac{1}{C_{12}} = \frac{1}{C_1} + \frac{1}{C_2}$

$C_{12}^{-1} = (2.0\,\mu F)^{-1} + (2.0\,\mu F)^{-1}$

$C_{12} = 1.0\,\mu F$

$C_{eq} = C_{12} + C_3$

$= (1.0\,\mu F) + (2.0\,\mu F)$

$C_{eq} = 3.0\,\mu F$