

Ex 16.4-16.7, #25, 26, 34, 35

16.4 p510

$$A = 2 \text{ cm}^2 = 2 \times 10^{-4} \text{ m}^2$$

$$d = 1 \text{ mm} = 1 \times 10^{-3} \text{ m}$$

$$C = \frac{\epsilon_0 A}{d} = 8.85 \times 10^{-12} \left( \frac{2 \times 10^{-4}}{1 \times 10^{-3}} \right) = 1.77 \times 10^{-12} \text{ F}$$

**1.77 pF**

prefixes

|                   |       |
|-------------------|-------|
| $\times 10^{-12}$ | pico  |
| $10^{-9}$         | nano  |
| $10^{-6}$         | micro |
| $10^{-3}$         | milli |

Capacitor

$$C = \frac{Q}{\Delta V}$$

q single charge

Q multiple qs

C capacitance  
unit Farad

$$F = \frac{C}{V}$$

$$C = \epsilon_0 \frac{A}{d}$$

$$\epsilon_0 = 8.85 \times 10^{-12} \frac{\text{C}^2}{\text{N} \cdot \text{m}^2}$$