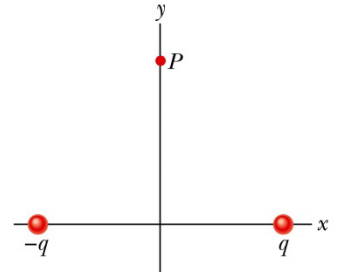


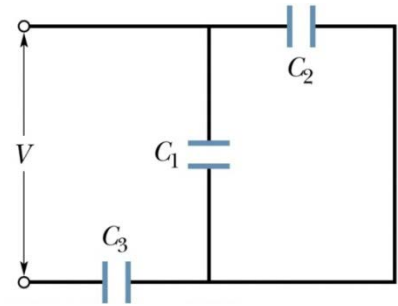
Ch. 19 Worksheet

1. A spherical drop of water carrying a charge of 30 pC has a potential of 500 V at its surface ($V = 0$ at infinity). What is the radius of the drop?

2. The figure shows two charged particles on an x -axis: $-q = -3.20 \times 10^{-19}$ C at $x = -3.00$ m and $q = +3.20 \times 10^{-19}$ C at $x = +3.00$ m. What is the net electric potential at point P located at $y = +4.00$ m due to the two charges?



3. The figure shows three capacitors with capacitance $C_1 = 10.0 \mu\text{F}$, $C_2 = 5.00 \mu\text{F}$, and $C_3 = 4.00 \mu\text{F}$. (a) Find the equivalent capacitance for the combination. Assuming that the $V = 15 \text{ V}$. (b) Determine the potential across each capacitor. (c) What is the charge on each capacitor?



4. A coaxial cable used in a transmission line has an inner radius of 0.10 mm and an outer radius of 0.60 mm . Calculate the capacitance per meter for the cable. Assume that the space between the conductors is filled with polystyrene, which has a dielectric constant (κ) of 2.6 and a dielectric strength of 24 kV/mm .