

assignment 4

sb-prob2616.problem

Due date: Sun Feb 8 11:59:59 pm 2026 (EST)

Find the capacitance of the Earth. Take the mean radius of the Earth to be $6.37E+6\text{m}$. (The outer conductor of the "spherical capacitor" may be considered as a conducting sphere at infinity where V approaches zero.)

You are correct. Your receipt no. is 163-1962

sb-prob2619.problem

Two capacitors when connected in parallel give an equivalent capacitance of 9.60pF and an equivalent capacitance of 1.41pF when connected in series. What is the capacitance of each capacitor? Enter the smaller value first.

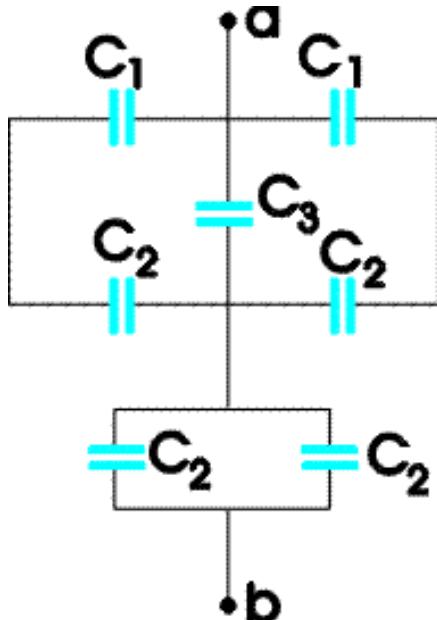
You are correct. Your receipt no. is 163-4834

You are correct. Your receipt no. is 163-2907

sb-prob2628.problem

9. Calculate the equivalent capacitance between points a and b for the group of capacitors connected as shown in the figure below, if $C_1 = 5.48\mu\text{F}$, $C_2 = 10.5\mu\text{F}$, and $C_3 = 1.80\mu\text{F}$.

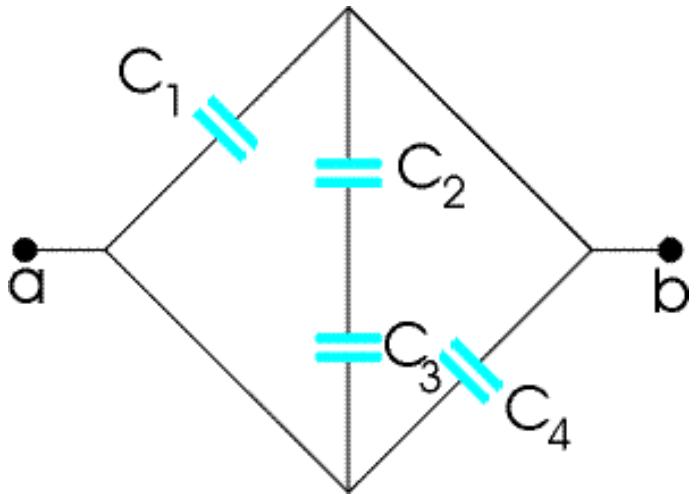
You are correct. Your receipt no. is 163-1242



sb-prob2630.problem

Calculate the equivalent capacitance between points a and b in the combination of capacitors shown in the figure below, if $C_1 = 3.92\mu\text{F}$, $C_2 = 7.20\mu\text{F}$, $C_3 = 4.80\mu\text{F}$ and $C_4 = 5.87\mu\text{F}$.

You are correct. Your receipt no. is 163-8836



sb-prob2656a.problem

A 1.71nF parallel-plate capacitor is charged to an initial potential difference $\Delta V = 120\text{V}$ and then isolated. The dielectric material between the plates is mica ($\kappa = 4.60$). How much work is required to withdraw the mica sheet?

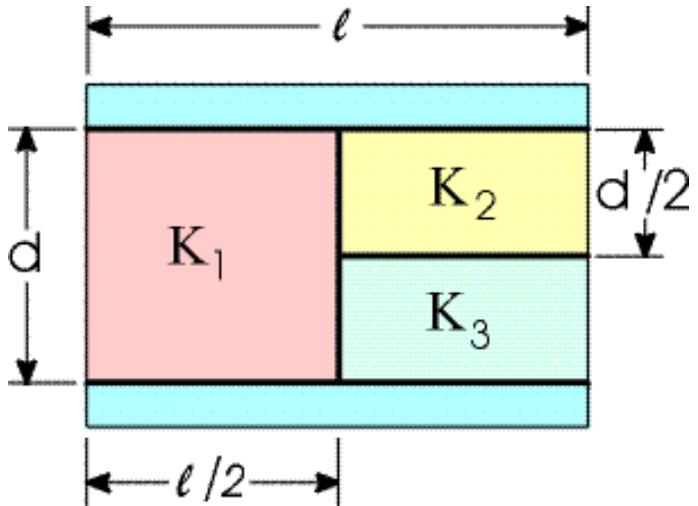
You are correct. Your receipt no. is 163-5644 What is the potential difference of the capacitor after the mica is withdrawn?

You are correct. Your receipt no. is 163-1599

sb-prob2658.problem

11. A parallel-plate capacitor with an area of $A = 144.0\text{cm}^2$ is constructed using three dielectric materials, as shown in the figure below. You may assume that $l \gg d$. Calculate the capacitance using the values $d = 2.18\text{cm}$, $\kappa_1 = 4.96$, $\kappa_2 = 5.58$, and $\kappa_3 = 2.34$.

You are correct. Your receipt no. is 163-1388



sb-prob2672a.problem

Capacitors $C_1 = 6.42\mu\text{F}$ and $C_2 = 1.75\mu\text{F}$ are charged as a parallel combination across a 230V battery. The capacitors are disconnected from the battery and from each other. They are then connected positive plate to negative plate and negative plate to positive plate. Calculate the resulting charge on capacitor C_1 .

You are correct. Your receipt no. is 163-3629 Calculate the resulting charge on capacitor C_2 .

You are correct. Your receipt no. is 163-2776

sf-prob1636.problem

A $11.2\mu\text{F}$ capacitor is fully charged across a 18.0V battery. The capacitor is then disconnected from the battery and connected across an initially uncharged capacitor, C . The resulting voltage across each capacitor is 3.81V. What is the capacitance C ?

You are correct. Your receipt no. is 163-2716

kn-prob2958a.problem

Two 10.1cm diameter electrodes 0.562cm apart form a parallel plate capacitor. The electrodes are attached by metal wires to the terminals of a 13.0V battery. What are the magnitude of charge on each electrode, the electric field strength inside the capacitor, and the potential difference between the electrodes while the capacitor is attached to the battery? (Enter the magnitude of the charges first, then the electric field strength, and the potential difference last.)

You are correct. Your receipt no. is 163-7134

You are correct. Your receipt no. is 163-1464

You are correct. Your receipt no. is 163-4219 What are the magnitude of charge on each electrode, the electric field strength inside the capacitor, and the potential difference between the electrodes after insulating handles are used to pull the electrodes away from each other until they are 1.04cm apart? The electrodes remain connected to the battery during this process. (Enter the magnitude of the charges first, then the electric field strength, and the potential difference last.)

You are correct. Your receipt no. is 163-8707

You are correct. Your receipt no. is 163-6160

You are correct. Your receipt no. is 163-56 What are the magnitude of charge on each electrode, the electric field strength inside the capacitor, and the potential difference between the electrodes after the original electrodes (moved back to 0.562cm apart) are expanded until they are 24.6cm in diameter while remaining connected to the battery? (Enter the magnitude of the charges first, then the electric field strength, and the potential difference last.)

You are correct. Your receipt no. is 163-2566

You are correct. Your receipt no. is 163-3704

You are correct. Your receipt no. is 163-818