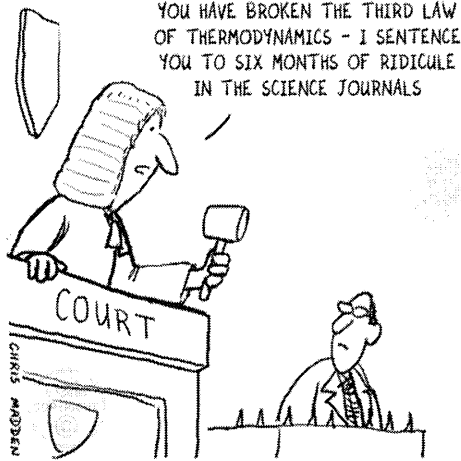


AP 2 Capacitors WS 3

Name: _____ Period: _____

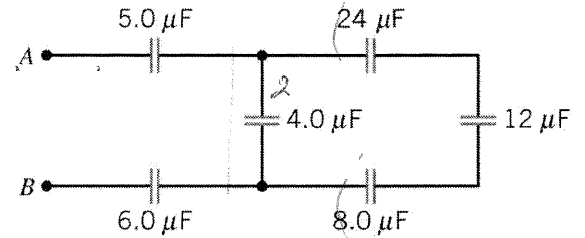


“There are things done today in electrical science which would have been deemed unholy by the very man who discovered electricity, who would themselves not so long before been burned as wizards.” – **Bram Stoker**

1. If you are given two capacitors, how should you connect them to get (a) maximum equivalent capacitance and (b) minimum equivalent capacitance?
2. A parallel plate capacitor has a capacitance of $7.0 \mu\text{F}$ when filled with a dielectric. The area of each plate is 1.5^{-5}m . What is the dielectric constant of the dielectric?
3. A switch that connects a battery to a $10 \mu\text{F}$ capacitor is closed. Several seconds later you find that the capacitor plates are charged to $\pm 30 \mu\text{C}$. What is the emf of the battery?
4. A $6 \mu\text{F}$ capacitor, a $10 \mu\text{F}$ capacitor, and a $16 \mu\text{F}$ capacitor are connected in series. What is their equivalent capacitance?

5. A $6\mu\text{F}$ capacitor, a $10\mu\text{F}$ capacitor, and a $16\mu\text{F}$ capacitor are connected in parallel. What is their equivalent capacitance?

6. Determine the equivalent capacitance between A and B for the group of capacitors in the drawing.



7. Three capacitors (4.0 , 6.0 , and $12.0\mu\text{F}$) are connected in series across a 50.0-V battery. Find the voltage across the $4.0\mu\text{F}$ capacitor.

8. Three capacitors (3.0 , 7.0 , and $9.0\mu\text{F}$) are connected in series. What is their equivalent capacitance?

9. What is the equivalent capacitance of two capacitors with capacitances of $0.40\mu\text{F}$ and $0.60\mu\text{F}$ when they are connected (a) in series and (b) in parallel?