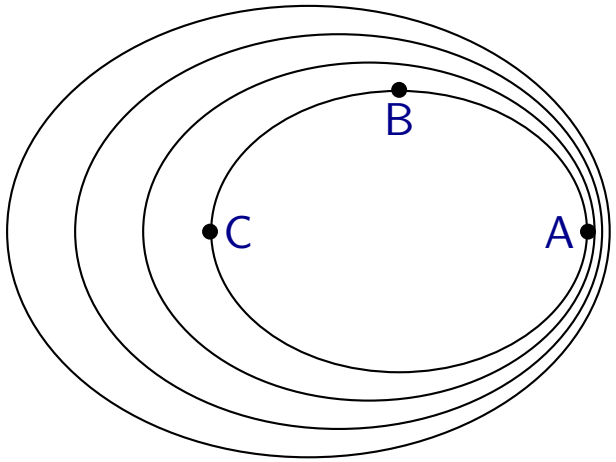
Question 1

Source charges produce equipotential lines as illustrated.

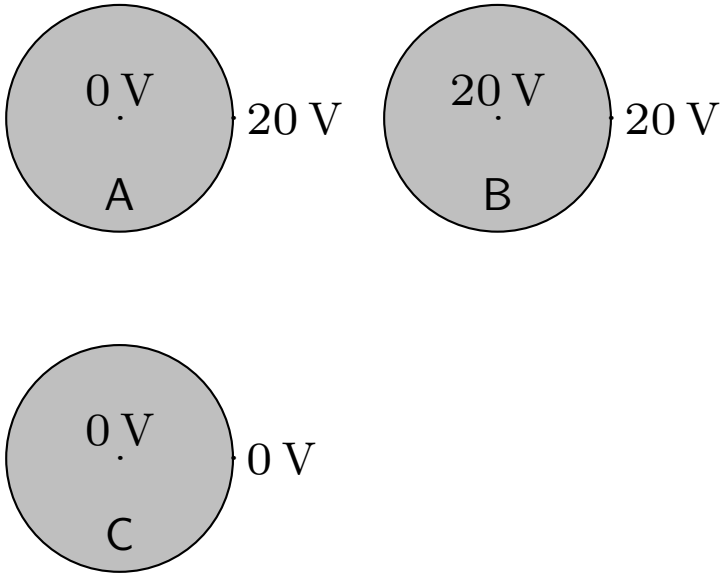


Which of the following represents the rank of the *magnitude* of the electric field at the illustrated points?

1. $E_{\mathrm{A}} = E_{\mathrm{B}} = E_{\mathrm{C}}$
2. $E_{\mathrm{A}} < E_{\mathrm{B}} < E_{\mathrm{C}}$
3. $E_{\mathrm{C}} < E_{\mathrm{B}} < E_{\mathrm{A}}$
4. $E_{\mathrm{B}} < E_{\mathrm{C}} < E_{\mathrm{A}}$
5. $E_{\mathrm{B}} < E_{\mathrm{A}} < E_{\mathrm{C}}$

Question 2

Several disks are illustrated with the potential at the center and at an edge as indicated.



Given these potentials, which of these could be a conductor?

1. All of them.
2. Only A.
3. Only B.
4. Only C.
5. Only A and B.
6. Only B and C.

Warm Up Question 1

A sphere made of a perfect conductor is placed to the left of a single positive point charge. How does the electric potential on the edge of the sphere farthest from the point charge compare to that on the edge closest to the point charge? Explain your answer.

1. Higher closest to the point charge since closer to a positive source gives a higher potential.
2. Positive on both sides of the sphere.
3. Equal. For a perfect conductor the potential is the same everywhere.

Warm Up Question 2

A parallel plate capacitor is connected to a battery. The separation between the plates of the capacitor is made to decrease. As the separation decreases does the charge on the capacitor increase, decrease or stay constant? Explain your answer.

1. Increases. Electric potential stays constant and separation drops. $\Delta V = \frac{\eta}{\epsilon_0}\Delta x$.
2. Increases. $Q = C\Delta V = \frac{A\epsilon_0}{d}\Delta V$.
3. Stays constant. Electric potential drops.
4. Stays constant. The potential stays the same so the charge is the same.
5. Decreases. $V = k\frac{q}{r}$ and r decreases, so q must decrease.