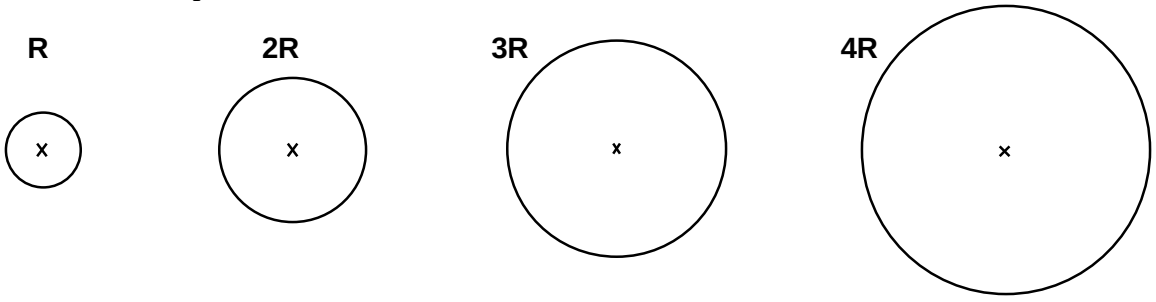
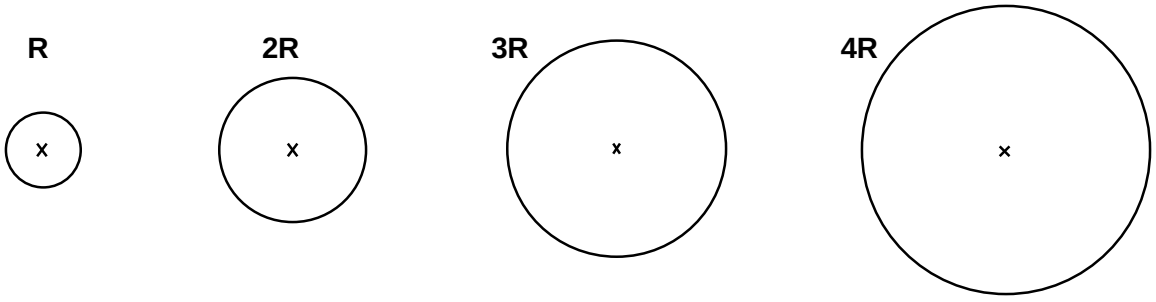
Charged Conducting Spheres—Electric Field at the Center [129]

Shown below are eight hollow spheres of different sizes made of an electrically conducting material such as copper. On each sphere there is a charge, as given in the figure, which is distributed evenly over the sphere. Each figure is independent of the others (they do not affect each other).

Rank these situations, from greatest to least, on the basis of the magnitude of the electric field at the center of the sphere.



q **= +Q** **A** ***q*** **= +Q** **B** ***q*** **= -Q** **C** ***q*** **= +Q** **D**



q **= +2Q** **E** ***q*** **= +2Q** **F** ***q*** **= -3Q** **G** ***q*** **= +4Q** **H**

Greatest 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8_____ Least

Or, the magnitude of the electric field at the center is the same (but not zero) for these cases.__

Or, the magnitude of the electric field at the center is zero for these cases. ___

Please carefully explain your reasoning.

How sure were you of your ranking? (circle one)

Basically Guessed				Sure					Very Sure
1	2	3	4	5	6	7	8	9	10

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