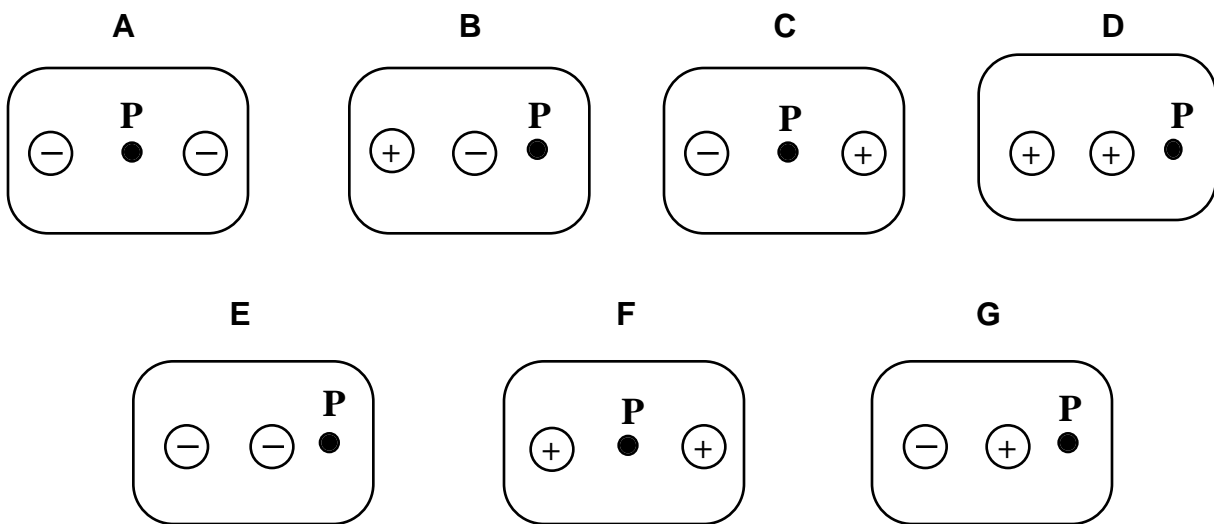


Two Electric Charges—Electric Force ¹²⁶

Given below are seven arrangements of two electric charges. In each figure, a point labeled P is also identified. All of the charges are the same size, 20 C, but they can be either positive or negative. The charges and point P all lie on a straight line. The distances between adjacent items, either between two charges or between a charge and point P, are all 5 cm. There are no other charges in this region. For this problem, we are going to place a +5 C charge at point P.

Rank these arrangements from greatest to least on the basis of the strength of the electric force on the +5 C charge when it is placed at point P. That is, put first the arrangement that will exert the strongest force on the +5 C charge at point P, and put last the arrangement that will exert the weakest force on the +5 C charge when it is placed at point P.



Strongest 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ Weakest

Or, all of these arrangements exert the same strength force on the +5 C charge. _____

Or, all of these arrangements will exert zero force on the +5 C charge. _____

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

¹²⁶ D. Maloney