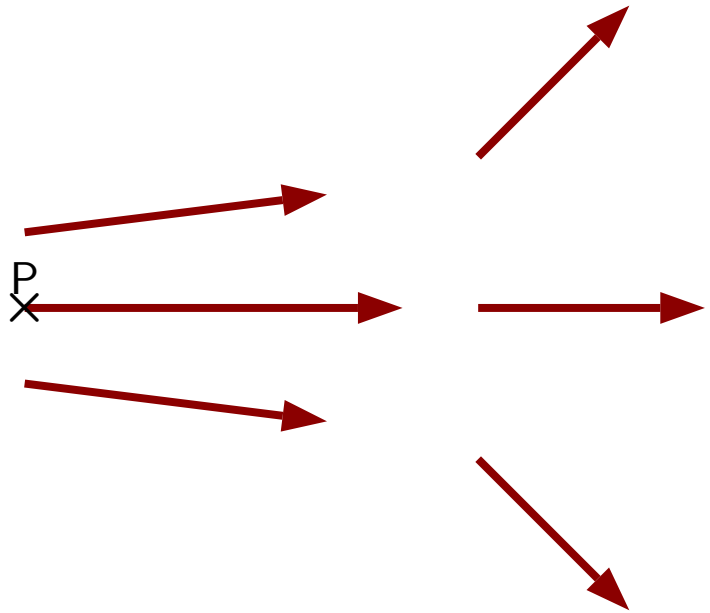
Warm Up Question 1

Go to the Phys 132 course website (not D2L). Look in the navigation bar on the left or at the top and click "Course Materials". This will open a new page with a day-by-day listing of the course activities. Click on the link for the "Slides 2" on 25 January. You should see the quiz questions that were covered in the class and one more that was not covered in class. Now answer that last question.

Question 1

The electric field produced by a hidden charge collection of charged particles (sources) is illustrated below. Initially a probe charge with charge $5\,\mathrm{C}$ is placed at point P. This is removed and replaced by a new probe charge with charge $10\,\mathrm{C}$, also placed at P.

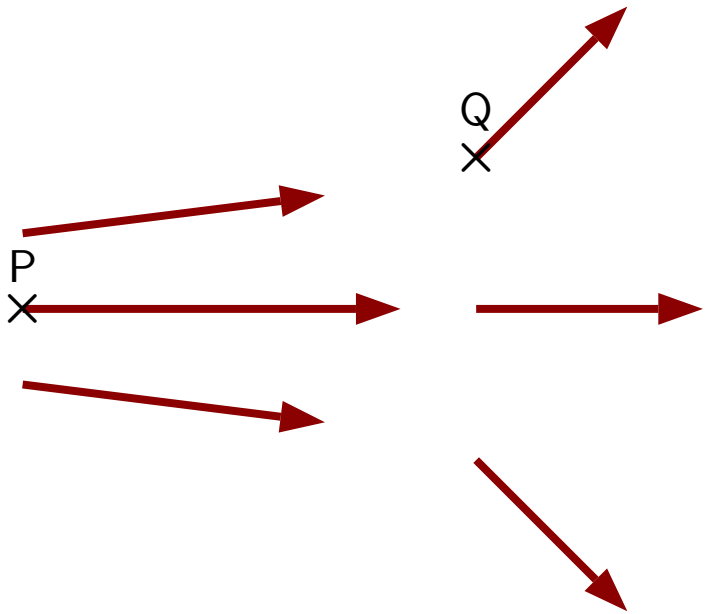


Which is true at point regarding the electric field produced by the sources at P and the forces on the probe charges?

1. Field is same (for both probes), force is same (for both probes).
2. Field is same, force differs.
3. Field differs, force is same.
4. Field differs, force differs.

Question 2

The electric field produced by a hidden charge collection of charged particles is illustrated below.



Which of the following is true?

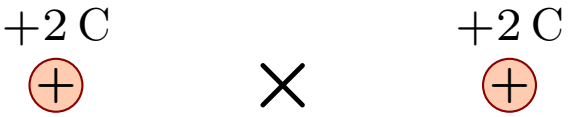
1. The magnitude of the force exerted on a charge at P is always larger than that exerted on another charge at Q.
2. The magnitude of the force exerted on a charge at P is always smaller than that exerted on another charge at Q.
3. The magnitude of the force exerted on a charge at P could be larger or smaller than that exerted on another charge at Q.
4. The magnitude of the force exerted on a charge at P can never be the same as that exerted on another charge at Q.

Question 3

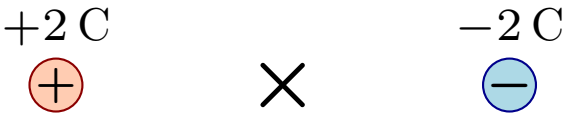
In the following separate scenarios two source charges produce electric fields. Consider the magnitude of the field at the location midway between the two source charges.

Case A

Case B



Case C



Which of the following describes the rank of the magnitudes of the fields at the midpoint?

1. $E_C > E_A = E_B$
2. $E_A = E_B = E_C$
3. $E_A = E_B > E_C$
4. $E_A > E_B > E_C$
5. $E_C > E_A > E_B$

Question 4

Two point charges with equal magnitude but opposite sign are located as illustrated.

A third charge, Z, is placed at point P.

Which of the following best represents the net electric field produced by A and B at the location of Z?

1. $\rightarrow$ if Z is positive; $\leftarrow$ if Z is negative.
2. $\leftarrow$ if Z is positive; $\rightarrow$ if Z is negative.
3. $\rightarrow$ if Z is positive; $\rightarrow$ if Z is negative.
4. $\leftarrow$ if Z is positive; $\leftarrow$ if Z is negative.