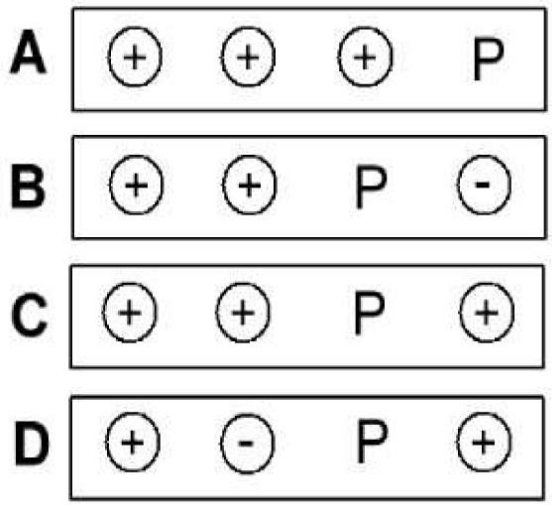
Three identical charges are lined up in a row. If we compare the electric force charge q_1 exerts on charge q_3 ($F_{1\to3}$) to the force q_2 exerts on charge q_3 ($F_{2\to3}$)

1. $F_{1\to3}$ is twice as big as $F_{2\to3}$.
2. $F_{1\to3}$ is half as big as $F_{2\to3}$.
3. $F_{1\to3}$ is more than twice as big as $F_{2\to3}$.
4. $F_{1\to3}$ is less than half as big as $F_{2\to3}$.
5. $F_{1\to3}$ doesn't affect q_3 at all since q_2 is in the way.

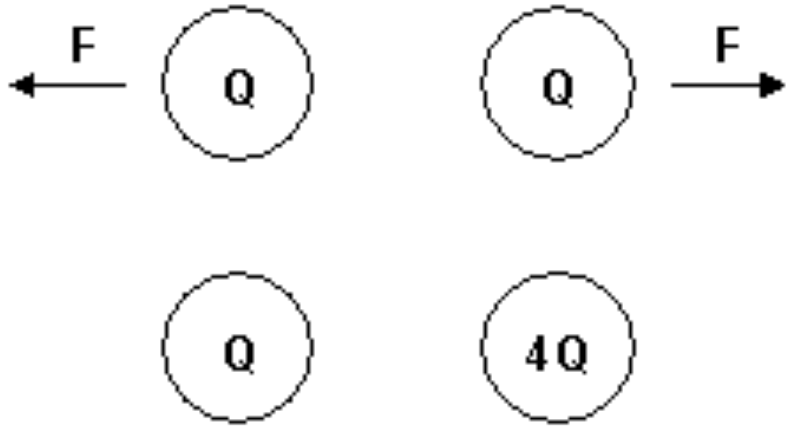
In the figure are shown four arrangements of charge. Each charge has the same magnitude, but some are + and some are -.
All distances are to the same scale.
In which would the magnitude of the force felt by a positive test charge placed at P be the largest?

1. A
2. B
3. C
4. D
5. You can't tell.



Two small objects each with a net charge of Q (positive) exert a force of magnitude F on each other. We replace one of the objects with another whose net charge is 4Q. The original magnitude of the force on the Q charge was F; what is the magnitude of the force on the Q now?

1. 16F
2. 4F
3. F
4. F/4
5. other



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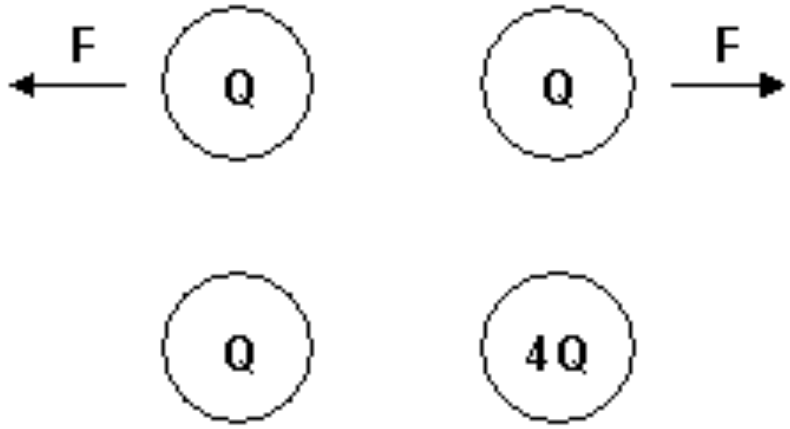
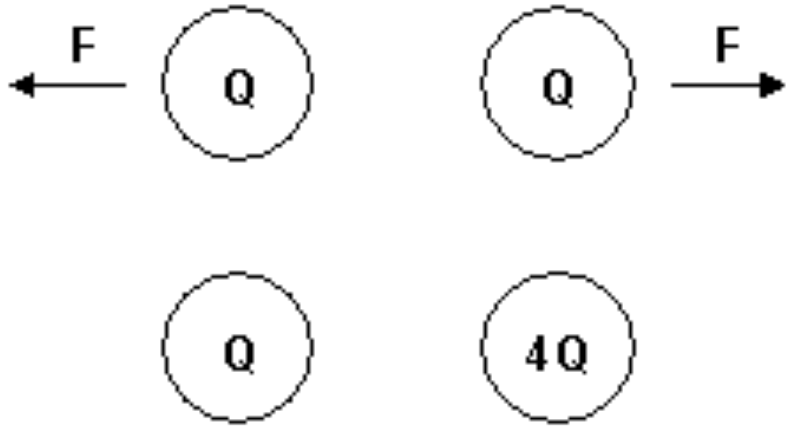
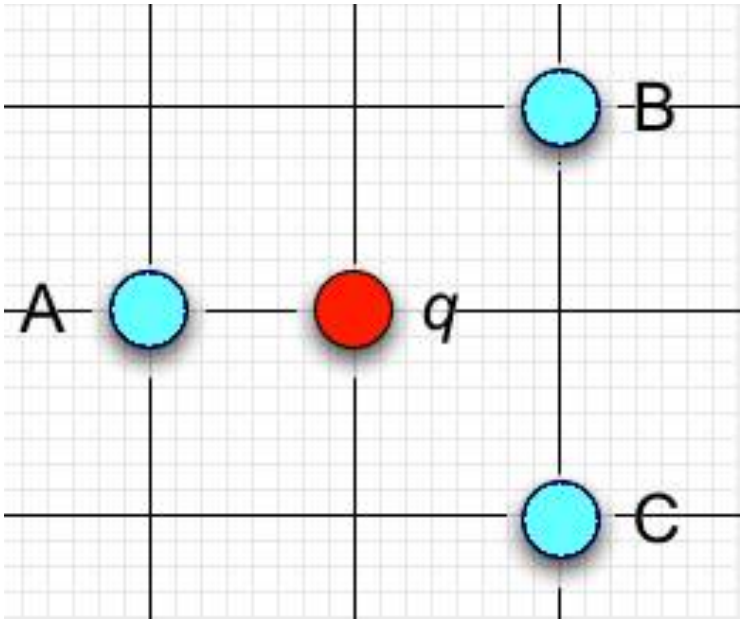


In the original state we assumed Q was positive. If the symbol Q were taken to have a negative value, how would the forces change compared to the original state?

1. Would stay the same
2. Both would reverse
3. Only the left force would reverse
4. Only the right force would reverse
5. Something else



A test charge (labeled *q*) is placed in a situation in which it feels the electrical force from three other charges (of opposite sign to it) labeled A, B, and C. (The charges are on a uniform grid as shown and the positions are to scale.) Which of the following combinations of forces is the greatest?



1. $\vec{F}_{A\to q}$
2. $\vec{F}_{B\to q} + \vec{F}_{C\to q}$
3. $\vec{F}_{A\to q} + \vec{F}_{B\to q} + \vec{F}_{C\to q}$
4. There is not enough information to tell.