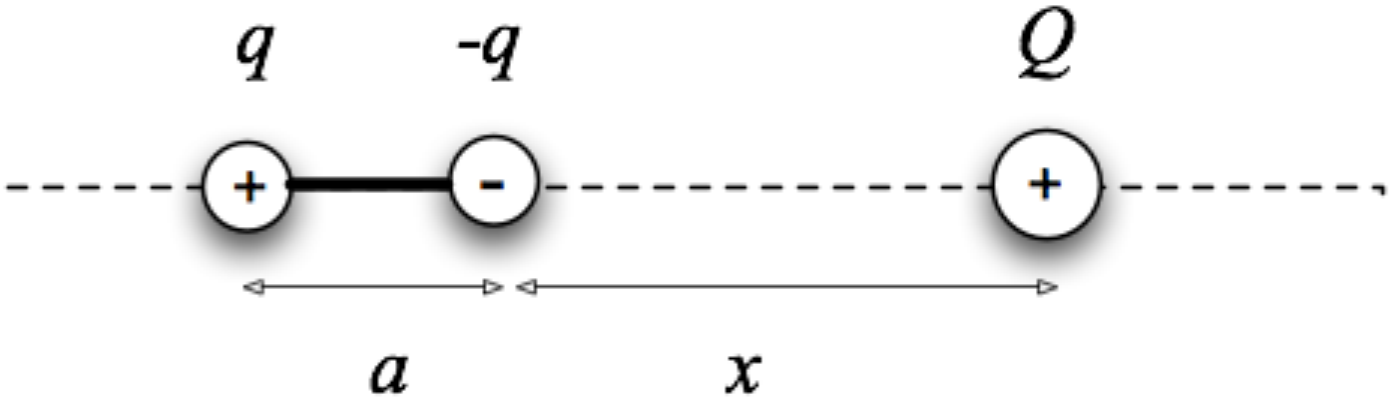
Find the magnitude and direction of the force the charge Q exerts on the dipole.

$q = 1\ \mu C$ $\quad a = 0.1\ m$ $\quad k_C = 9 \times 10^9\ \text{N-C}^2/\text{m}^2$

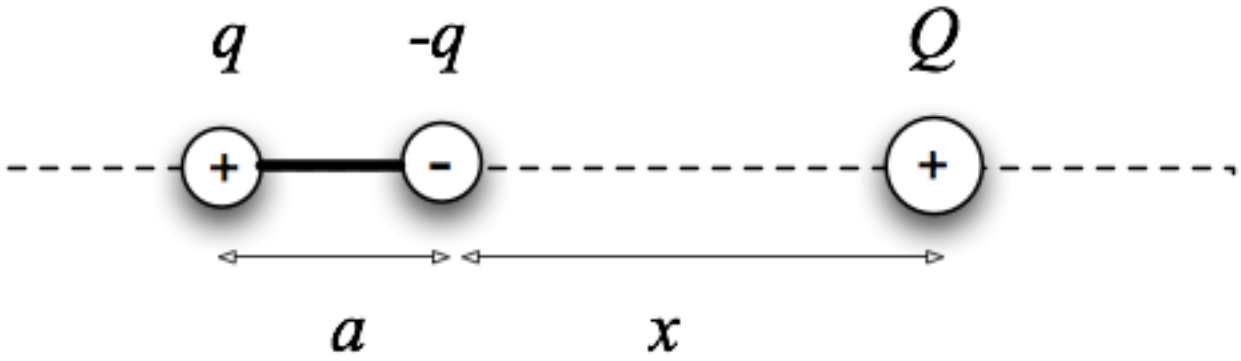
$Q = 1\ \mu C$ $\quad x = 0.2\ m$



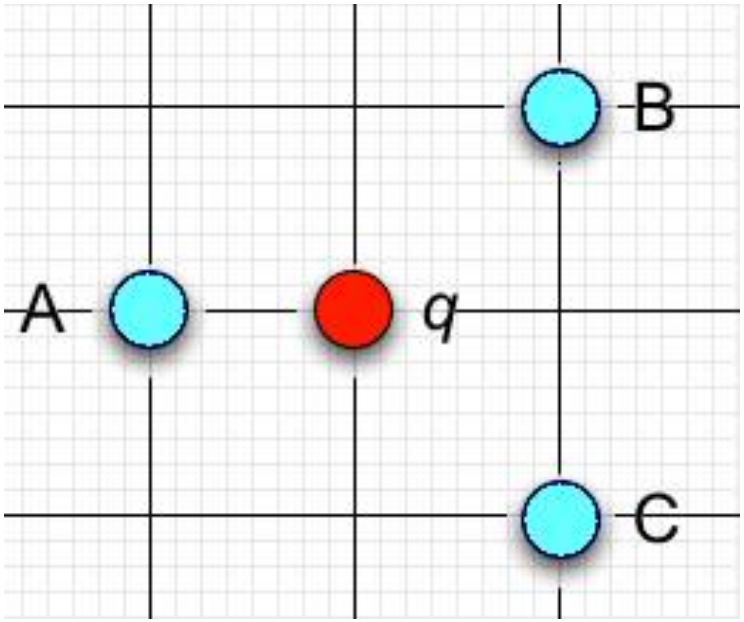
Find the magnitude and direction of the force the charge Q exerts on the dipole.

$q = -e\ (1.6\times10^{-19}\ \text{C})$ $\quad a = 1.0\ \text{nm}$ $\quad k_C = 9\times10^{9}\ \text{N-C}^2/\text{m}^2$

$Q = +e\ (1.6\times10^{-19}\ \text{C})$ $\quad x = 5.0\ \text{nm}$



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.