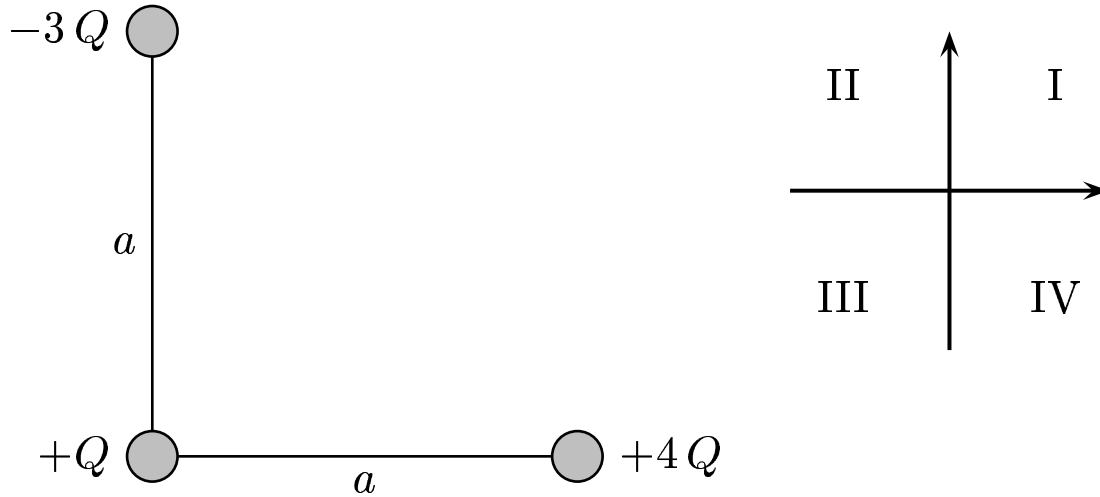


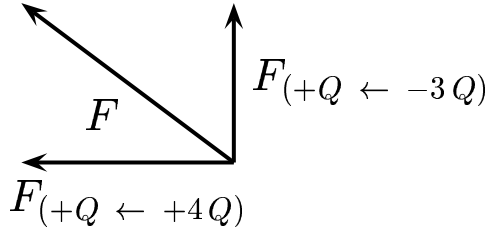
Q is at the origin, $+4Q$ is on the positive x -axis a distance a from the origin, and $-3Q$ is on the positive y -axis a distance a from the origin.



Determine the magnitude of the electric force on the charge $+Q$ at the bottom left-hand corner (at the origin).

- A) $\|\vec{F}\| = 3 \frac{Q^2}{r^2}$. C) $\|\vec{F}\| = 5 \frac{Q^2}{r^2}$.
- B) $\|\vec{F}\| = 4 \frac{Q^2}{r^2}$. D) $\|\vec{F}\| = \sqrt{5} \frac{Q^2}{r^2}$.

Coulomb's law is $\vec{F}_{AB} = k \frac{Q_A Q_B}{r^2} \hat{r}_{AB}$, which tells us that unlike charges attract and like charges repel.



$$\|\vec{F}\| = \sqrt{4^2 + 3^2} \frac{Q^2}{a^2} = 5 \frac{Q^2}{r^2}.$$

Answer C.

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