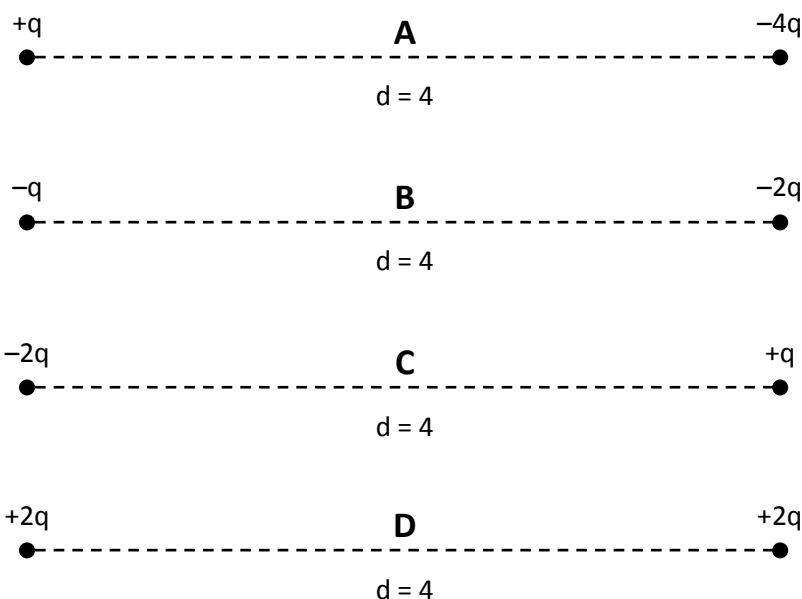


Astronomy Ranking Task: Coulomb's Law

Exercise #1

Description: The figures below (A – D) each show two charges with the amount of charge expressed in arbitrary units (q), separated by a distance (d) also expressed in arbitrary units. All of the charges have the same mass.



A. Ranking instructions: Rank the strengths of the electrical forces exerted on the charges located on the left side of each pair.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, the strength of the electrical force exerted on each left side charge is the same. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

B. Ranking instructions: Rank the strengths of the electrical forces exerted on the charges located on the right side of each pair.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, the strength of the electrical force exerted on each right side charge is the same. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

C. Ranking instructions: Using Newton's second law, rank the accelerations that the left side charges experience as a result of the electrical force exerted on each.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, each left side charge experiences the same acceleration. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

D. Ranking instructions: Using Newton's second law, rank the accelerations that the right side charges experience as a result of the electrical force exerted on each.

Ranking Order: Greatest 1 _____ 2 _____ 3 _____ 4 _____ Least

Or, each right side charge experiences the same acceleration. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

E. Ranking instructions: Rank the strengths of the electrical forces exerted on the charges located on the left side of each pair *from most attracted to its paired charge to most repelled by its paired charge*.

Most
Ranking Order: Attracted 1 _____ 2 _____ 3 _____ 4 _____ Most
Repelled

Or, all left side charges are attracted to, and none are repelled by, their paired charges. _____ (indicate with a check mark)

Or, all left side charges are repelled by, and none are attracted to, their paired charges. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:
