

NEXT-TIME QUESTION



Two oppositely charged particles, an alpha particle with 2 positive charges and a less-massive electron with a single negative charge are attracted to each other. Compared to the force that the alpha particle exerts on the electron, the electron exerts a force on the alpha particle that is

- a) greater. b) the same. c) less.

The particle with the most acceleration is the

- d) alpha particle. e) electron. c) same for each.

As the particles get closer to each other, each experiences an increase in

- g) force. h) speed. i) acceleration.
j) all of the above. k) none of the above.



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Answers: b, the same; e, electron; j, all of the above

By Newton's 3rd law, the particles pull on each other with equal and opposite forces. By Newton's 2nd law, for the same force the particle with less mass undergoes more acceleration. By Coulomb's law, as the separation distance is decreased, the force increases. By Newton's 2nd law, as the force increases the acceleration increases. Since the particles accelerate toward each other, their speeds increase also.

