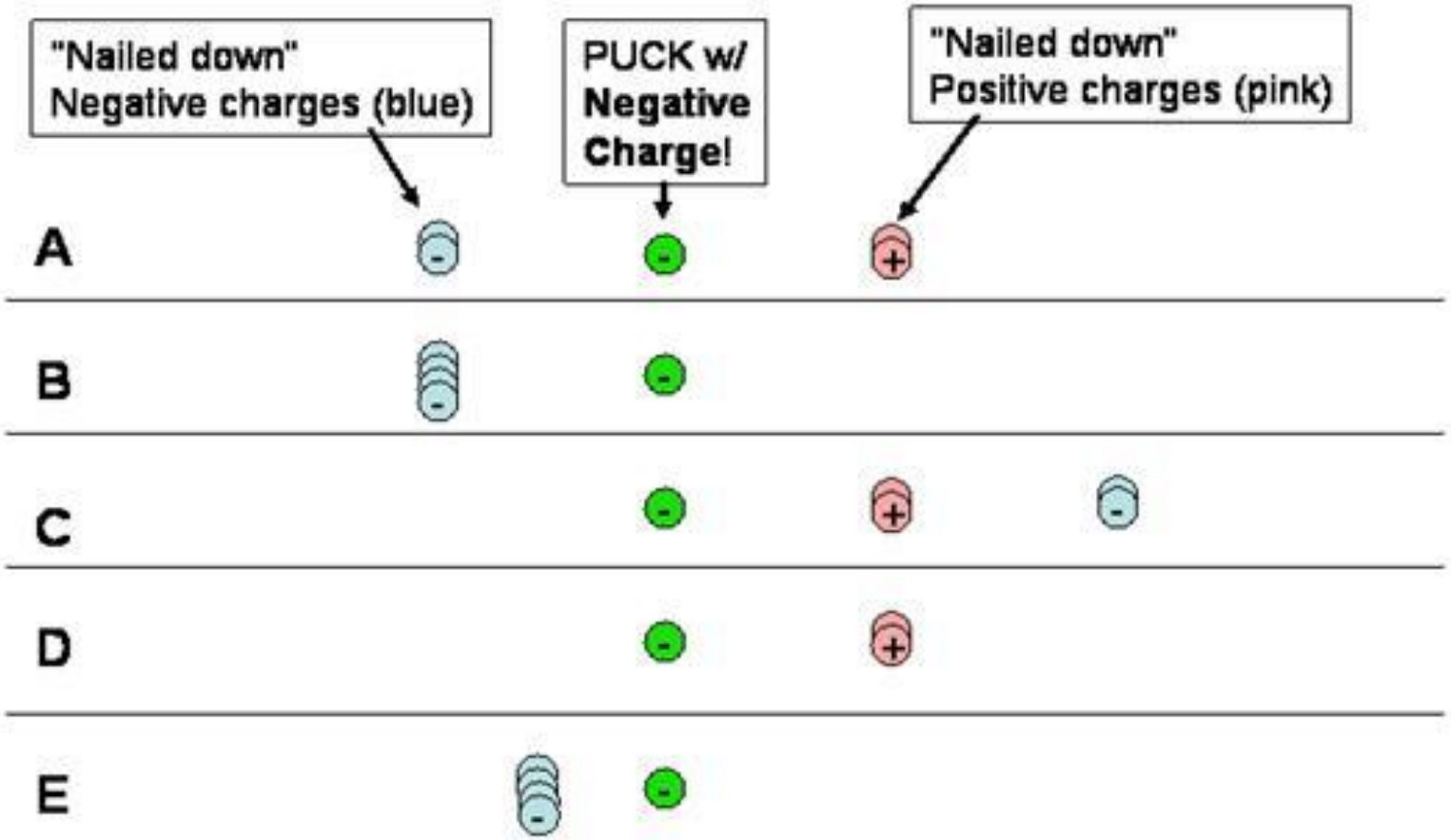
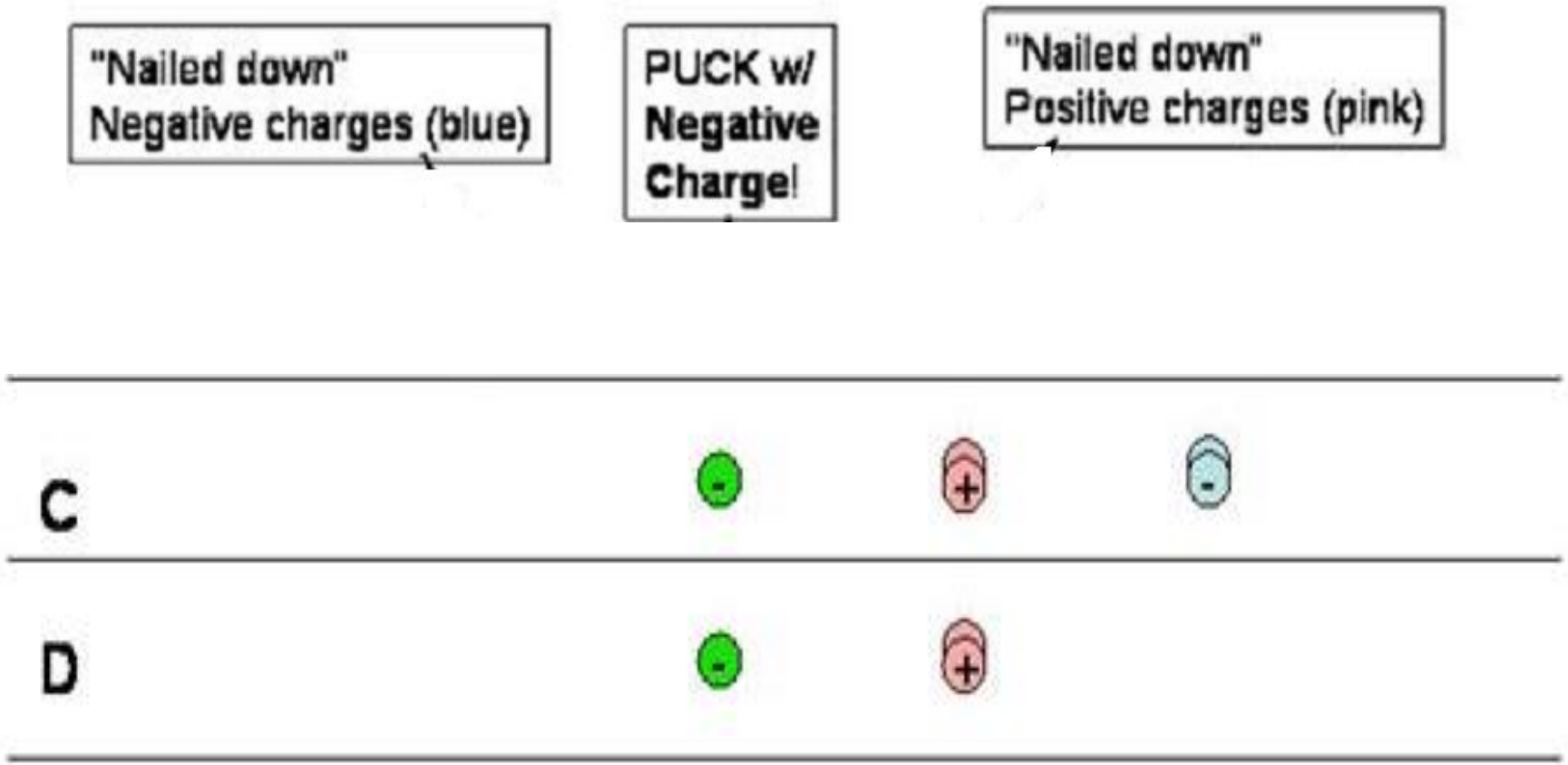
Electric Field hockey and Charges and Fields

All but the last 2 questions are adapted from Perkins' homework for a PHYS1010 lecture on electric charges from CU Boulder. The assignment can be downloaded from the PhET Teaching Ideas pages.



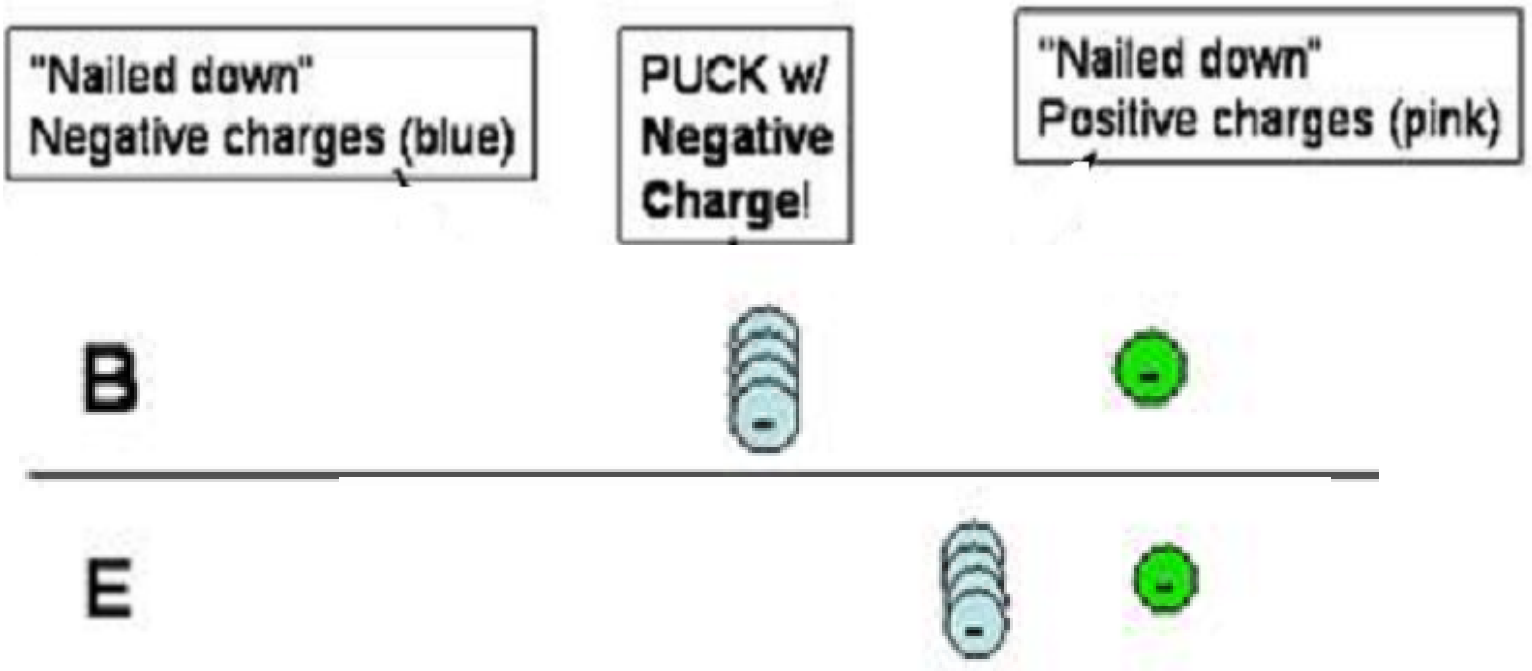
All of the pucks feel a force to the right.

A. True B. False



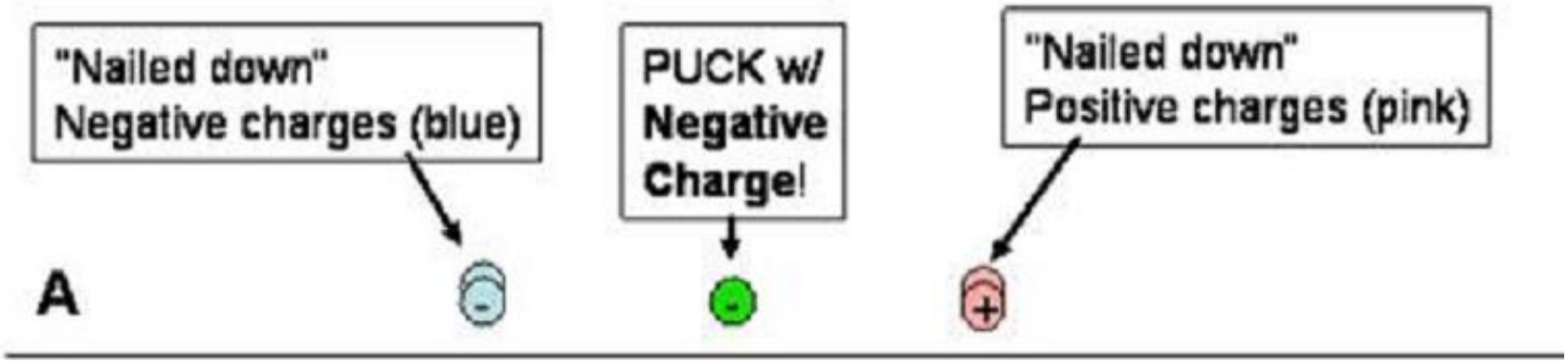
The puck • in C feels a greater force to the right than the puck in D.

A. True B. False



The puck • in E feels a force to the right that is four times greater than that felt by the puck in B.

A. True B. False



The net force on the puck • in A is zero.

A. True B. False

For which of these choices is puck most likely not to move?

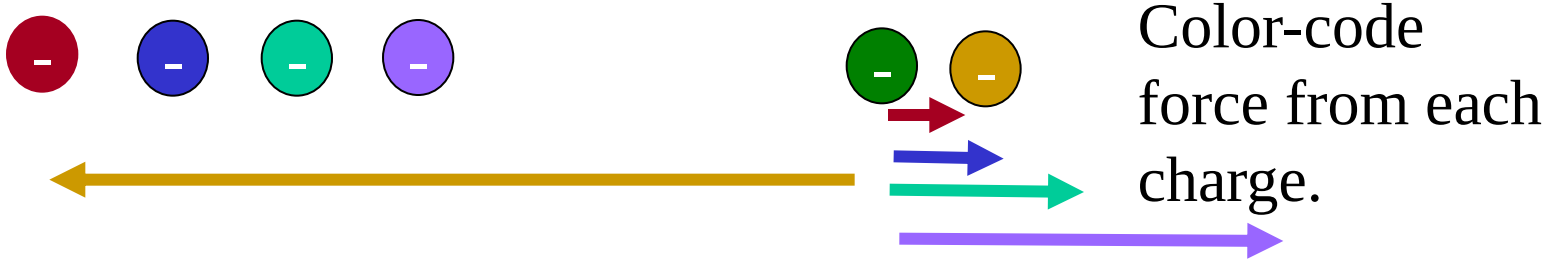
A

B

C

Answer A Look at forces from each charge and add them up

A



Color-code force from each charge.

If we put bunch of electrons in a box. They will

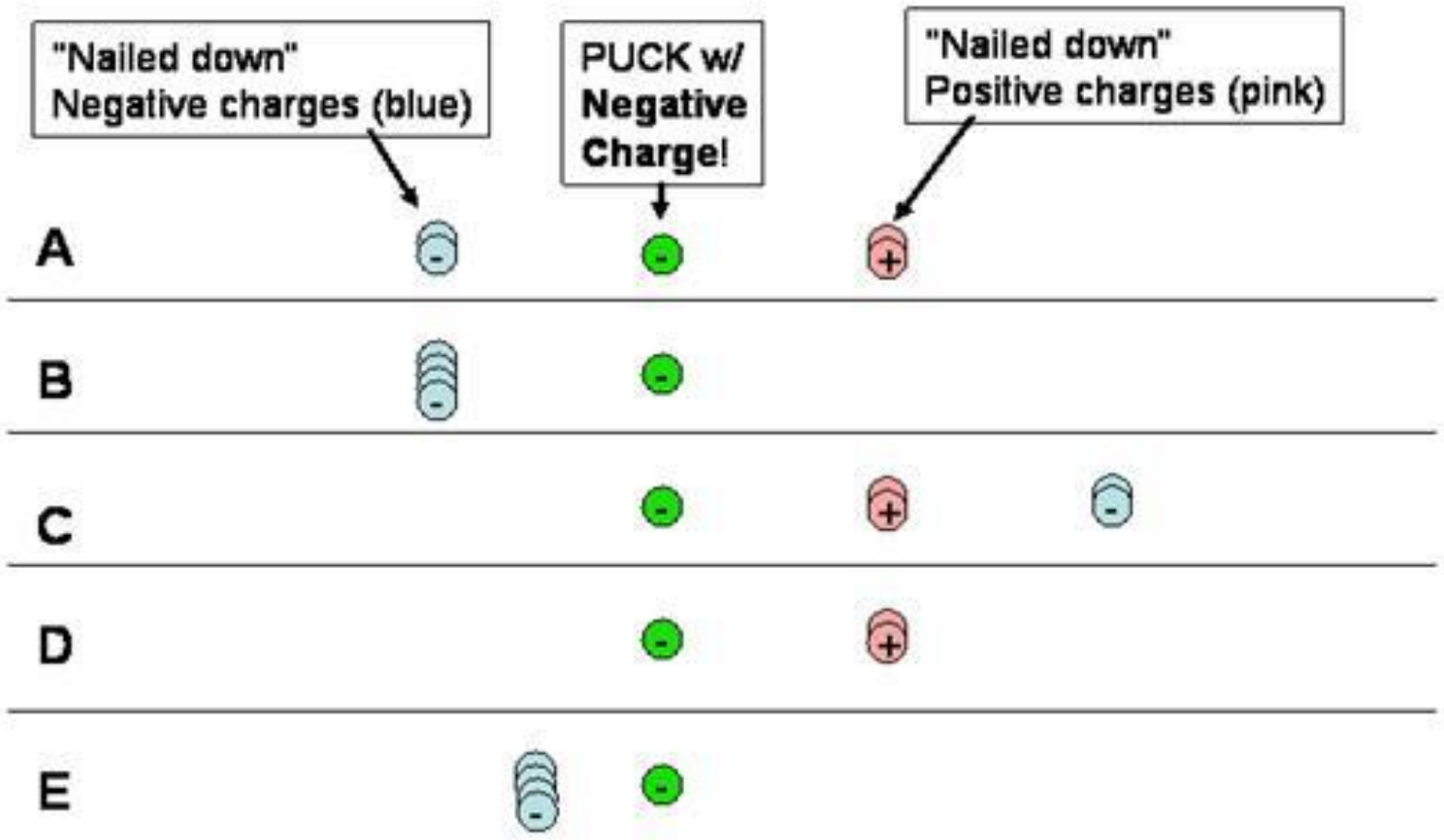
a. clump together.

b. spread out uniformly across box.

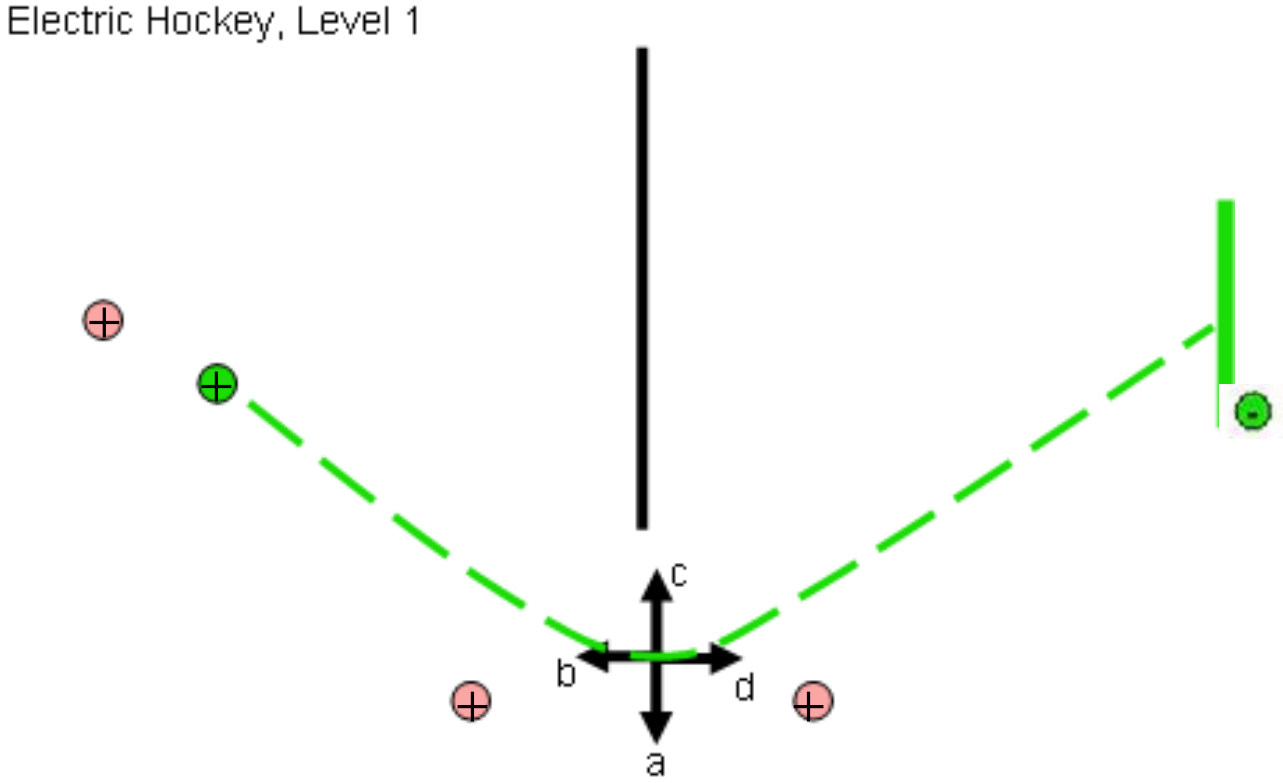
c. make a layer on walls.

d. do something else.

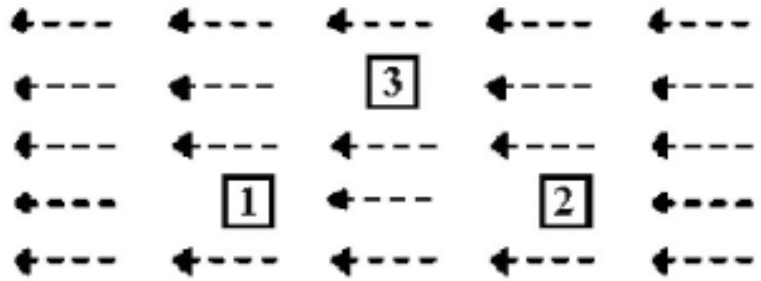
Which one would help explain why a charged balloon sticks to a wall.



Which arrow best represents the direction of acceleration of the puck as it passes by the wall ?



A positive charge might be placed at one of three different locations in a region where there is a uniform electric field, as shown.



How do the electric force, F, on the charge at positions 1, 2, and 3 compare?

1. F is greater at 1.
2. F is greater at 2.
3. F is greater at 3.
4. F is zero at all three places.
5. F at all three positions is the same but not zero.

When a positive charge
is released from rest
in a uniform electric field,
it will

1. remain at rest in its initial position.
2. move at a constant acceleration.
3. move at a constant velocity.
4. move with a linearly changing acceleration.
5. you can't tell from the information given