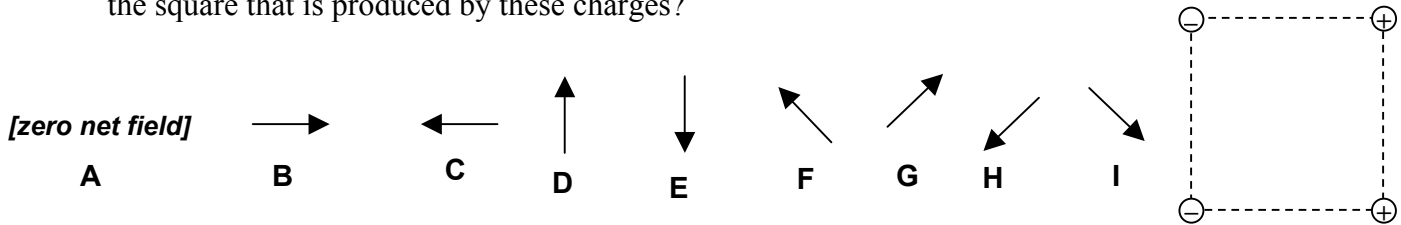


Physics 112
Quiz #5
September 11, 2000
Name: _____

1. Two negative charges and two positive charges, all of *equal magnitude*, are placed at the corners of a square as shown. Which choice most closely represents the *net electric field* at the *center* of the square that is produced by these charges?



2. A strong and unchanging electric field is present in a certain region of space. In order to measure the strength of this field, you place a particle with very small amount of charge q at some point and measure the force on that particle. If you remove the charge q , and instead you place a charge $2q$ at that same point, the electric *field* magnitude (*not* the force) you now measure at that point will be:
- A. the same.
 - B. twice as large.
 - C. four times as large.
 - D. half as large.
 - E. one quarter as large.
 - F. Not enough information to be sure.
3. A *negative* point charge is fixed at the origin. A positive charge q is placed at point P , initially at rest. After it is released and allowed to move freely, it passes through point R . Which of the following is true about the charge q :
- A. Its kinetic energy is larger at R than at P , and its potential energy is *also* larger at R than at P .
 - B. Its kinetic energy is larger at R than at P , but its potential energy is *smaller* at R than at P .
 - C. Its kinetic energy is smaller at R than at P , and its potential energy is *also* smaller at R than at P .
 - D. Its kinetic energy is smaller at R than at P , but its potential energy is *larger* at R than at P .
 - E. Both its kinetic energy and its potential energy are the *same* at R as they are at P .
4. At a particular point in otherwise empty space, a 4.6-C charge is placed and it experiences an electrical force of 18.4 N. If this charge is removed, and instead a 6-C charge is placed at that point, what will be the magnitude of the force that *it* will experience? *No partial credit. Your answer must be within 15% of the correct answer to receive credit. Units missing or incorrect: -1 point.*

Answer: _____