**Chapter 23. Electric fields**

St. ID: , Name:

1. Three point charges lie along a straight line as shown in Figure P23.12, where *q*1 = 6.00 *μ*C, *q*2 = 1.50 *μ*C, and *q*3= −2.00 *μ*C. The separation distances are *d*1= 3.00 cm and *d*2= 2.00 cm. Calculate the magnitude and direction of the net electric force on (a) *q*1, (b) *q*2, and (c) *q*3*.*

****Ans:

**Figure P23.12**

1. ****Three point charges are arranged as shown in Figure P23.11. Find (a) the magnitude and (b) the direction of the electric force on the particle at the origin.

Ans:

**Figure P23.11**

1. ****A point charge + 2*Q* is at the origin and a point charge −*Q* is located along the *x* axis at *x* = *d* as in Figure P23.19. Find a symbolic expression for the net force on a third point charge *+Q* located along the *y* axis at *y* = *d.*

Ans:

**Figure P23.19**

1. ****Three point charges are located on a circular arc as shown in Figure P23.31. (a) What is the total electric field at *P*,the center of the arc? (b) Find the electric force that would be exerted on a −5.00-nC point charge placed at *P.*

Ans:

**Figure P23.31**