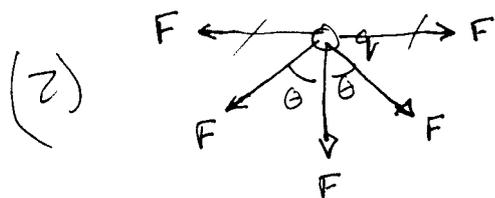
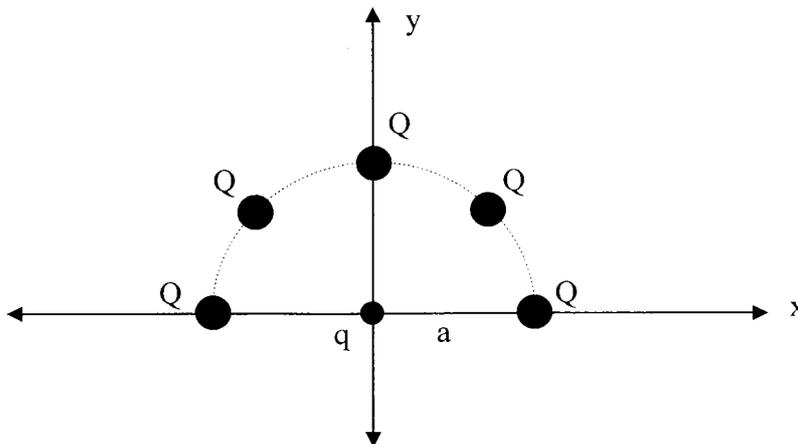


Five identical point charges, each having charge Q , are equally spaced on a semicircle of radius, a , as shown below. Find the net force on a charge, q , located equidistant from the five other charges. Be sure to simplify your answer and somehow specify the direction of the net force.



(1)

$$F_x = F \sin \theta - F \sin \theta = 0$$

$$F_y = F + F \cos \theta + F \cos \theta = F(1 + 2 \cos \theta)$$

$$= \frac{kQq}{r^2} \left(1 + 2 \frac{\sqrt{2}}{2}\right)$$

$$= \frac{kQq}{r^2} (1 + \sqrt{2}) = \frac{kQq}{r^2} (2.414)$$

2