## A problem in electrostatics

A copper-ring of radius r has a total charge  $Q=20\mu\mathrm{C}$  uniformly distributed. Suppose we place a point charge  $q=20\mu\mathrm{C}$  at a distance x from the center of the ring. Find out the value of  $x_{\min}$  where the force exerted on the point charge by the ring is the maximum.