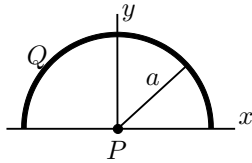


Problem 21.94 from MasteringPhysics with minor clarifications.

## 21.94 - Semicircle of Charge



Positive charge  $Q$  is uniformly distributed around a semicircle of radius  $a$ . The center of curvature, point  $P$ , is at the origin.

### Part A

Find the magnitude of the electric field at the center of curvature  $P$ . (Your answer should only involve  $k$ ,  $Q$ , and  $a$ .)

### Part B

What is the direction of the electric field at the center of curvature  $P$ .