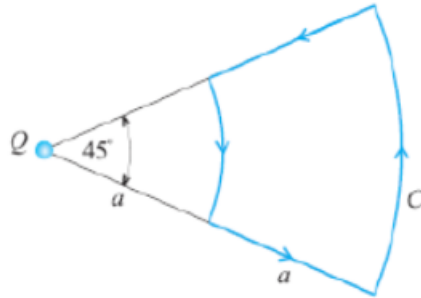


---

*Contour in the field of a point charge.* A point charge  $Q$  is situated in free space. The line integral (circulation) of the electric field intensity vector  $\mathbf{E}$  due to this charge along the contour  $C$  in Fig. Q1.7, composed of two circular parts of radii  $a$  and  $2a$ , respectively, and two radial parts of length  $a$ , amounts to ( $\epsilon_o$  is the permittivity of a vacuum)

- (A)  $Q/(4\pi\epsilon_o a)$ .
- (B)  $-Q/(4\pi\epsilon_o a)$ .
- (C)  $Q/(8\epsilon_o a)$ .
- (D)  $-Q/(8\epsilon_o a)$ .
- (E) zero.



**Figure Q1.7** Contour  $C$  in the electric field of a point charge  $Q$  in free space; for Question 1.8.

*Solution:* (E)

*Answer:* (E)