

**Special Problem 2-5.4**

Two things are known about vector field  $\mathbf{A}(\bar{r})$ :

1.  $\nabla \times \mathbf{A}(\bar{r}) = 0$
2.  $\int_{C_1} \mathbf{A}(\bar{r}) \cdot d\bar{\ell} = 4$

Determine the line integral  $\int_C \mathbf{A}(\bar{r}) \cdot d\bar{\ell}$  for:

- A.  $C = C_2$
- B.  $C = C_3$
- C.  $C = C_1 - C_2$
- D.  $C = C_1 + C_2$

