

Each problem is worth 0 points. In the event of an actual quiz, you would have received warning.

Let  $\mathbf{F}(x, y) = \langle x, y \rangle$ .

1. Evaluate  $\int_{C_1} \mathbf{F} \cdot d\mathbf{r}$ , where  $C_1$  is a path beginning at the origin, following a line segment to (5,0), then a counterclockwise arc of a circle centered at the origin with radius 5 to (0,5), then returning to the origin along a line segment.
2. Evaluate  $\int_{C_2} \mathbf{F} \cdot d\mathbf{r}$ , where  $C_2$  is a path beginning at the origin, following a line segment to (0,2), then a counterclockwise arc of a circle centered at the origin with radius 2 to (-2,0), then returning to the origin along a line segment.
3. Evaluate  $\int_{C_3} \mathbf{F} \cdot d\mathbf{r}$ , where  $C_3$  is a path beginning at the origin, following a line segment to (3,0), then a line segment from there to (3,3), followed by a line segment from there to (0,3), and finally a line segment from there to the origin.
4. Evaluate  $\int_{C_4} \mathbf{F} \cdot d\mathbf{r}$ , where  $C_4$  is a path beginning at (-1,1), following a line segment to (-1,-1), then a line segment from there to (1,-1), followed by a line segment from there to (1,1), and finally a line segment from there to (-1,1).

Let  $\mathbf{G}(x, y) = -y \mathbf{i} + x \mathbf{j}$ .

5. Evaluate  $\int_{C_1} \mathbf{G} \cdot d\mathbf{r}$ , where  $C_1$  is a path beginning at the origin, following a line segment to (5,0), then a counterclockwise arc of a circle centered at the origin with radius 5 to (0,5), then returning to the origin along a line segment.
6. Evaluate  $\int_{C_2} \mathbf{G} \cdot d\mathbf{r}$ , where  $C_2$  is a path beginning at the origin, following a line segment to (0,2), then a counterclockwise arc of a circle centered at the origin with radius 2 to (-2,0), then returning to the origin along a line segment.
7. Evaluate  $\int_{C_3} \mathbf{G} \cdot d\mathbf{r}$ , where  $C_3$  is a path beginning at the origin, following a line segment to (3,0), then a line segment from there to (3,3), followed by a line segment from there to (0,3), and finally a line segment from there to the origin.
8. Evaluate  $\int_{C_4} \mathbf{G} \cdot d\mathbf{r}$ , where  $C_4$  is a path beginning at (-1,1), following a line segment to (-1,-1), then a line segment from there to (1,-1), followed by a line segment from there to (1,1), and finally a line segment from there to (-1,1).