Let

$F(x, y) = \langle 2x + y + 2, x + 3 \rangle$
$\mathcal{C}_1$ *be the upper unit semicircle oriented counterclockwise*
$\mathcal{C}_2$ *be the line segment connecting* $(1, 0)$ *to* $(-1, 0)$

Compute the amount of work done by $F(x, y)$ acting on an object

1. as it moves along $\mathcal{C}_1$
2. as it moves along $\mathcal{C}_2$