

Show all work. 5 points each.

1. Evaluate the integral where C is the given curve.

$$\int_C xy \, ds, \text{ C is the right half of the circle } x^2 + y^2 = 16$$

2. Evaluate the integral $\int_C \mathbf{F} \cdot d\mathbf{r}$ where $F(x, y) = \langle x^2y^3, y\sqrt{x} \rangle$ and $\mathbf{r}(t) = \langle t^2, -t^3 \rangle$.