1. Evaluate the double integral \( \iint_{D} \frac{2x}{1 + y^2} \, dA \), where \( D = \{(x, y) \mid 0 \leq y \leq 1, 0 \leq x \leq \sqrt{y}\} \).

2. Use polar coordinates to evaluate \( \iint_{R} \cos(x^2 + y^2) \, dA \), where \( R \) is the region in the first quadrant that lies within the circle \( x^2 + y^2 = 16 \).