

QUIZ 12

Name _____

1. Find $\int_R \int x \, dy \, dx$ where $R = \{(x, y) \mid y \geq 0, y \leq \sqrt{4 - x^2}\}$ (That is: the region bounded below by $y = 0$ and above by $y = \sqrt{4 - x^2}$)

2. Find the volume of an ice cream cone bounded by the hemisphere $z = \sqrt{8 - x^2 - y^2}$ and the cone $z = \sqrt{x^2 + y^2}$.

3. Find and classify all the critical points for the function $f(x, y) = \frac{x^2}{2} + 3y^3 + 9y^2 - 3x$.