

Exam 22
Multi. Calc

Name: _____

Show your work for full credits.

1. Find the absolute maximum and minimum of f on the set D .

$$f(x, y) = e^{-x^2-y^2}(x^2 + 2y^2); \quad D \text{ is the disk } x^2 + y^2 \leq 4$$

2. Find the point on the plane $x - y + z = 6$ that is closest to the point $(1, 2, 3)$, using Lagrange multipliers.

3. Evaluate

$$\iint xy^2 dA$$

D is enclosed by $x = 0$ and $x = \sqrt{1 - y^2}$

4. Evaluate

$$\int_0^1 \int_x^1 e^{x/y} dy dx$$

5. Evaluate

$$\int_0^2 \int_0^{\sqrt{2x-x^2}} \sqrt{x^2 + y^2} dy dx$$