

Name: _____

MA 3330: Quiz 3

1. Using the 2nd derivative test, find and classify the extremum for

$$f(x, y) = x^3 + 2xy - y^2.$$

2. Using the LaGrange Multipliers, find the extremum for $f(x, y, z) = x^2 + y^2 + z^2$, subject to $3x - z + 2y = 3$.

3. Compute the following double integral where R is the region contained within $x = 0$, $x = 3$, $y = -2$ and $y = 2$.

$$\iint_R (e^{2x}y) dA$$

4. Compute the following double integral where R is the region contained within $y = x$, $y = 4 - x$ and $x = 0$.

$$\iint_R (x^2 + y) dA$$

5. Compute the following double integral where R is the region contained within $x = y^2$ and $x = 4$.

$$\iint_R ye^{x^2} dA$$