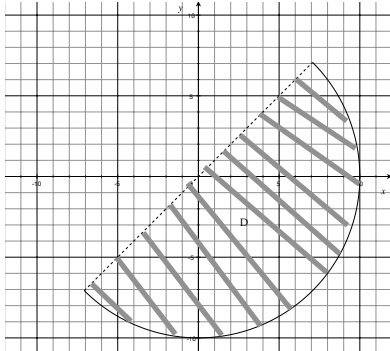


Exam II Answers
Math 126 C Winter 2019

1. $D = \{(x, y) : x^2 + y^2 \leq 10 \text{ and } x > y\}$



2.
$$\frac{\partial z}{\partial x} = \frac{2xz \cos(x^2z)}{8ye^z - x^2 \cos(x^2z)}$$
$$\frac{\partial z}{\partial y} = \frac{8e^z}{x^2 \cos(x^2z) - 8ye^z}$$

3. There are saddle points at $(0, -\sqrt{\frac{1}{2}})$ and $(0, \sqrt{\frac{1}{2}})$, a local max at $(1, 0)$, and a local min at $(-1, 0)$.

4.
$$\int_1^2 \int_1^{x^2} \left(xe^y + \frac{1}{x^3} \right) dy dx = \frac{1}{2}e^4 + \ln(2) - 2e - \frac{3}{8}$$

5.
$$V = \int_0^3 \int_{\frac{x}{3}}^{3-\frac{2}{3}x} xy dy dx$$