

Problem Set 11 - Math Tutorial Calculus II

1. Identify and determine the nature of the critical points of $f(x, y) = xy + \frac{8}{x} + \frac{1}{y}$.
2. Find all critical points of

$$f(x, y) = \frac{2y^3 - 3y^2 - 36y + 2}{1 + 3x^2}. \quad (1)$$

Identify any and all extrema of f .

3. What point on the plane $3x - 4y - z = 24$ is closest to the origin?
4. Find the absolute extrema of $f(x, y) = 2 \cos(x) + 3 \sin(y)$ on the rectangle $\{(x, y) \mid 0 \leq x \leq 4, 0 \leq y \leq 3\}$.