

INTRODUCTION TO CALCULUS

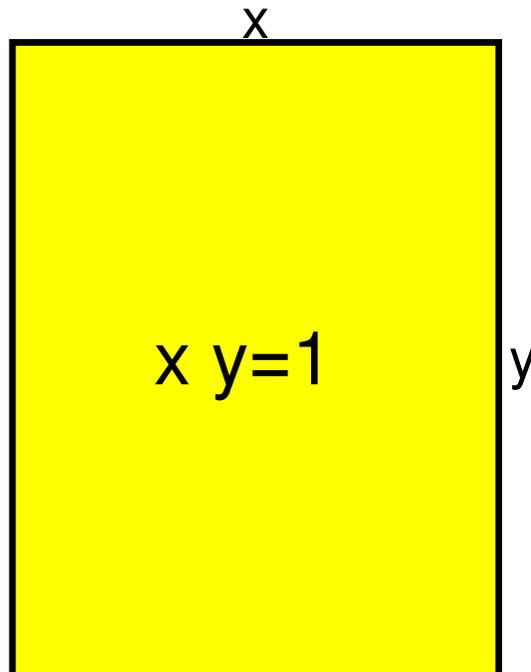
MATH 1A

UNIT 11: WORKSHEET

Critical points

- 1:** Find all critical points of $f(x) = x^3 - 12x$.
- 2:** Where does $f(x) = e^{-x^2}$ have a maximum?
- 3:** Let us find out which rectangle of fixed area $xy = 1$ has minimal circumference $2x + 2y$. To solve this problem, we have to extremize the function

$$f(x) = 2x + \frac{2}{x}.$$



- 3a:** Differentiate the function f . For which x is it continuous?

3b: Find the critical points of f , the places where $f'(x) = 0$.

3c: Sketch the graph of f on the interval $(0, 4]$.

