

Math 131 - Quiz 6

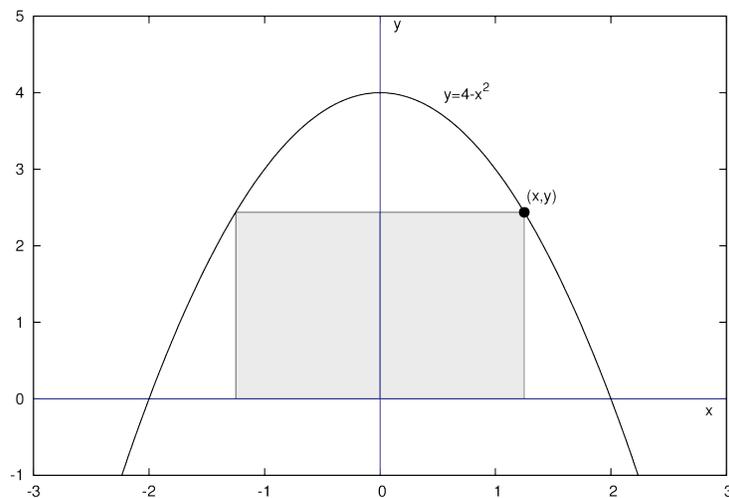
April 23, 2020

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary. You must work individually on this quiz. This quiz is due no later than April 28.

1. (4 points) A rectangle is bounded below by the x -axis and above by the graph of $y = 4 - x^2$ (see figure). Use calculus to find the coordinates of the point (x, y) that maximize the area of the rectangle.



2. (4 points) Compute each limit. Show all work!

(a) $\lim_{x \rightarrow 0} \frac{\arctan x}{\sin x}$

(b) $\lim_{x \rightarrow \infty} \frac{x^3}{e^{x^2}}$

3. (2 points) Try using L'Hôpital's rule to compute $\lim_{x \rightarrow \infty} \frac{x}{\sqrt{x^2 + 1}}$. What happens? Can you determine the limit by using techniques we learned earlier?