

Calc 1 Review Problems

Billr

1) a: What is the derivative of $f(x) = \frac{(x-2)(x^2+4)}{(x-2)}$?

b: What is the derivative at $x=2$?

2) Find the equation of the tangent of the circle $x^2+y^2 = 5^2$ at the point (3,4).

Blaski

1. For the following problem

a) find all critical points on the specified interval:

b) classify each critical point.

is it a local maximum or minimum?

is it a global maximum or minimum?

$$f(x) = 3x^4 - 8x^3 + 3 \text{ on } [-1, 1]$$

2. Find the derivative of the following function:

$$y = x \ln x$$

Fuentes

1. Evaluate the following limit.

$$\lim_{x \rightarrow \infty} \frac{5x + e^{-x}}{7x}$$

2. Given $f(y) = \sqrt{1 + \ln(1 - y)}$, find the derivative.

Juarez

$$\lim_{h \rightarrow 0} \frac{(3+h)^3 - 27}{h}$$

Determine whether the following functions are invertible:

(a) $f(x) = x^2$

(b) $g(x) = \sin(x)$

(c) $h(x) = x^3$

Piazza

1. Problem 1: $f(x) = \frac{1}{3}x^3 + \frac{5}{3}x + 2$

1) Determine whether or not $f(x)$ has an inverse function.

2) Discuss whether the function is increasing or decreasing.

3) Find any critical points if they exist. If none exist explain why.

2. Problem 2: Find the derivative of $\tan^2(2x + 1)$.

Salazar

Find the equation of the tangent line to the parabola $f(x) = x^2 + 2x + 3$, at the point $x=3$.

Differentiate the following: $x^2 \sin x$, with respect to x .

Smith

1. Find the equation of the tangent line to:

$$y = x^2 + 1$$

at the point $x = 1$

2. You have 50 feet of fencing with which to enclose a rectangular space for a garden. Find the largest area that can be enclosed with this much fencing and the dimensions for the corresponding garden.

Youn

1. After birth, an infant normally will lose weight for a few days and then start gaining. A model for the average weight W (in pounds) of infants over the first 2 weeks following birth is $W = .033t^2 - .3974t + 7.3032$. $0 \leq t \leq 14$ where t is measured in days. Find the open intervals on which W is increasing or decreasing.
2. Calculate three iterations of Newton's Method to approximate a zero of $f(x) = x^2 - 2$. Use $x_1=1$ as the initial guess.