

Name:ID#:serial#:Q1: Find the following limits:

a) $\lim_{x \rightarrow 4} \frac{4-x}{5-\sqrt{x^2+9}}$

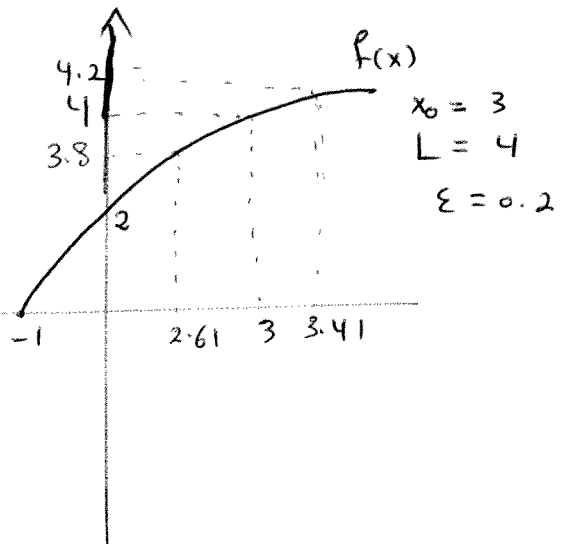
b) $\lim_{x \rightarrow 0^+} x e^{\sin^2(\frac{\pi}{x})}$

Q2:

If $f(x) = \sqrt{1-5x}$, $x_0 = -3$, $\varepsilon = \frac{1}{2}$

Find $\delta > 0$ such that $\lim_{x \rightarrow -3} f(x) = 4$) Use the graph to find a $\delta > 0$ such that for all x

$|x - x_0| < \delta \Rightarrow |f(x) - L| < \varepsilon$



Name:

Roll #

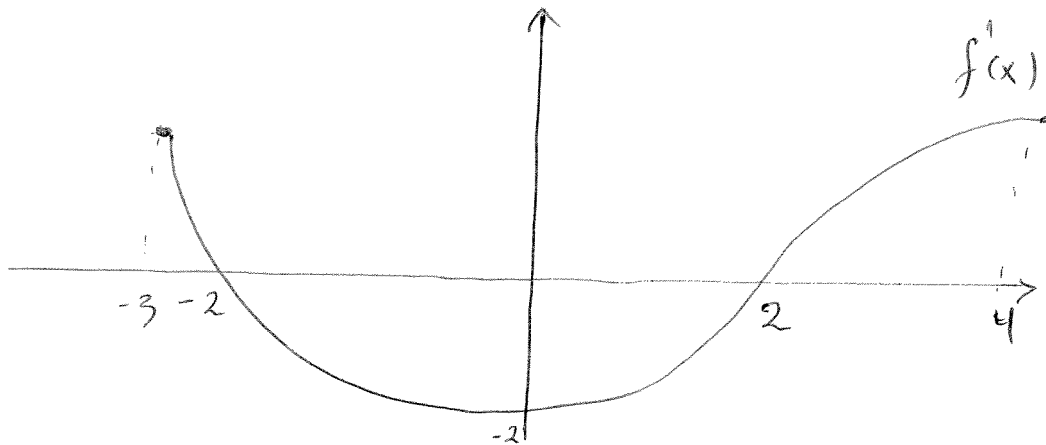
serial #:

Q₁: Find the absolute maximum and absolute minimum values of

$$f(x) = xe^{-x^2/8}, [-1, 4]$$

Q₂: If $f(1) = 2$ and $f'(x) \geq 5$ for $1 \leq x \leq 4$, what is the smallest possible value of $f(4)$?

Q₃:



Find the following:

- The critical numbers
- The interval of increase and decrease
- The inflection point(s)
- The intervals of concavity

Quiz # 3

Name:

serial #:

Remark: Solve 2 questions only.

Q₁: If $y = 1 + \sin(xy)$, find the equation of the normal at $(1, \pi)$.

Q₂: If $f(x) = \ln\left(\frac{2}{x}\right)$, find $f^{(100)}(1)$.

Q₃: Find $f'(1)$, if $f(x) = (3x+2)^{(2x-1)}$.

Quiz # 2

Name:

ID#:

Serial#:

Q₁:

• Evaluate the following:

a) $\lim_{x \rightarrow 3^-} \frac{9-x^2}{\sqrt{x^2-6x+9}}$

② $\lim_{x \rightarrow 2^+} \frac{\sqrt{x-2}}{\sqrt{x}-2}$

③ $\lim_{x \rightarrow 0} \frac{\sin(x-\pi)}{x}$

Q₂:

a) Let $f(x) = \frac{x^2-1}{x^2+2x-3}$, Find all vertical asymptotes of the graph of f .

b) Let $f(x) = \begin{cases} x^2+2, & \text{if } x < 0 \\ ax+b, & \text{if } 0 \leq x < 1 \\ 3+2x-x^2, & \text{if } x > 1 \end{cases}$

Determine a and b so that the function $f(x)$ is continuous everywhere.

c) Evaluate $\lim_{x \rightarrow -\infty} \frac{\sqrt{x^2+1}}{x+1}$.