

What month is your birthday ?

What are the first 2 digits of your address ?

What are the last 2 digits of your zip code ?

What are the last 2 digits of your social security number ?

[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER,
USE YOUR STUDENT ID NUMBER]

SCORE: ____ / 100 POINTS

CALCULATOR NOT ALLOWED ON THIS SECTION

State the precise definition of a limit.

SCORE: ____ / 5 POINTS

SEE OTHER KEY

State the Squeeze Theorem.

SCORE: ____ / 5 POINTS

SEE OTHER KEY

Find all horizontal asymptotes of $f(x) = \frac{x}{\sqrt{x^2 - 9}}$. Show all relevant work.

SCORE: ____ / 12 POINTS

SEE OTHER KEY

Determine the interval(s) on which $f(x) = x - \sqrt{9 - x^2}$ is continuous. Show all relevant work.

SCORE: ____ / 10 POINTS

SEE OTHER KEY

MULTIPLE CHOICE: $\lim_{x \rightarrow 0^-} e^{-\frac{1}{x}} =$

SCORE: ____ / 5 POINTS

[a] ∞

[b] $-\infty$

[c] 0

[d] 1

LETTER OF CORRECT ANSWER: [A]

Evaluate the following limits. Your answer should be a number, ∞ , $-\infty$ or "DNE" (if no other answer applies). SCORE: ____ / 25 POINTS
Show all relevant work as demonstrated in class. If an answer is "DNE", explain briefly.

[i] $\lim_{x \rightarrow 2} \frac{x^3 - 8}{x^2 + 4x - 12}$

SEE OTHER KEY

[ii] $\lim_{x \rightarrow 2} \frac{x+5}{\frac{6}{x+1} - 3}$

SEE OTHER KEY

[iii] $\lim_{x \rightarrow -\infty} \sin(\tan^{-1} x)$

SEE OTHER KEY

[iv] $\lim_{x \rightarrow 2} \frac{4 - x^2}{x - \sqrt{x+2}}$

SEE OTHER KEY

[v] $\lim_{x \rightarrow 4} f(x)$ where $f(x) = \begin{cases} 7 - x^2 & \text{if } x < -1 \\ 3x - 4 & \text{if } -1 < x < 4 \\ 12 - x & \text{if } x > 4 \end{cases} = 8$

$$\lim_{x \rightarrow 4^+} f(x) = \lim_{x \rightarrow 4^+} (12 - x) = 8$$

$$\lim_{x \rightarrow 4^-} f(x) = \lim_{x \rightarrow 4^-} (3x - 4) = 8$$