

Your Name

Your Signature

Student ID #

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Problem	Total Points	Score
1	4	
2	4	
3	4	
4	4	
5	4	
Total	20	

- This exam is closed book. You may use one  $8\frac{1}{2} \times 11$  sheet of notes.
- Do not share notes.
- Only a scientific non-graphing, non-programmable, small-screen calculator is allowed during exams.
- In order to receive credit, you must show your work. Do not do computations in your head. Instead, write them out on the exam paper.
- Place a box around **YOUR FINAL ANSWER** to each question.
- If you use a trial and error (or guess and check) method when an algebraic method is available, you will not receive full credit.
- Raise your hand if you have a question.

1 (4 points): 4 3 2 1 0

Find the domain of the following function

$$f(x) = \sqrt{x^2 + 3x + 2}$$

2 (4 points): 4 3 2 1 0

Evaluate the following limit

$$\lim_{x \rightarrow 0} \frac{\sqrt{9+x} - 3}{x}$$

3 (4 points): 4 3 2 1 0

Evaluate the following limits

(a)  $\lim_{x \rightarrow +\infty} \frac{2x - 3x^2}{(x + 3)(x + 1)}$

(b)  $\lim_{x \rightarrow 0} \frac{\tan(3x)}{\sin(2x)}$

4	(4 points):	4	3	2	1	0
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Evaluate the following limit

$$\lim_{x \rightarrow -1^-} \frac{x^2 + x - 5}{x + 1}$$

5	(4 points):	4	3	2	1	0
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Show that the equation  $x(\sin x + x) = 1$  has at least one solution in  $[0, 2]$ .