Name:	Roll Number:

Quiz 03 (Set A)

SIAS, Krea University (AY 2025-26) Mathematical Methods for Economics (Course Code: **ECON211**) 05 September 2025

Maximum Points: 10 Duration: 30 minutes

Dear students,

Instructions and Advice:

- This is a closed book quiz.
- This quiz accounts for 10% of your grades.
- You need to answer 8 questions in all.
- All questions are compulsory. Points for each question are mentioned in parentheses.
- Please select only one choice for the multiple choice questions.
- At no point during the exam, you are allowed to ask clarificatory questions. Make reasonable assumptions if you have doubts and proceed to answer the question.
- You are not permitted to use any electronic device including calculators.
- There is plenty of time. Use it wisely, do not rush.
- All the best!

Multiple Choice Questions

1. (1 point) Consider the following statements:

Statement (i):

 $\lim_{x\to 0} |x|$ does not exist.

Statement (ii):

- f(x) = |x| is differentiable at x = 0.
 - A. Both (i) and (ii) are correct.
 - B. Statement (i) is correct but statement (ii) is wrong.
 - C. Statement (i) is wrong but statement (ii) is correct.
 - D. Both (i) and (ii) are wrong.

Answer: _____

- 2. (1 point) If $f(x) = x^2$, $g(x) = x^2 + 1$ and $h(x) = (x+1)^2$, then
 - A. the graph of g(x) can be obtained by shifting f(x) downwards by 1 unit.
 - B. the graph of h(x) can be obtained by shifting f(x) upwards by 1 unit.
 - C. the graph of h(x) can be obtained by shifting f(x) to the left by 1 unit.
 - D. the graph of g(x) can be obtained by shifting f(x) to the right by 1 unit.

Answer: _____

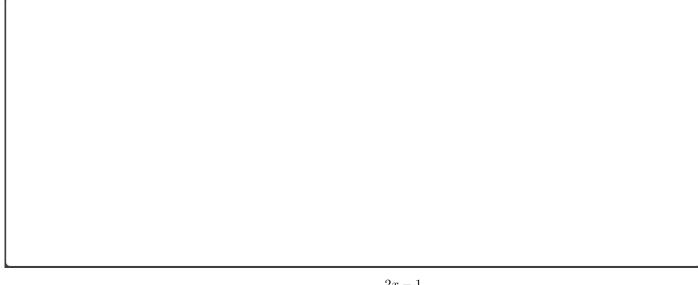
- 3. (1 point) Let f(x) = 2. Then,
 - A. $f^{-1}(x) = 2$
 - B. $f^{-1}(x) = \frac{1}{2}$
 - C. $f^{-1}(x) = \frac{1}{2x}$
 - D. $f^{-1}(x)$ does not exist.

Answer: _____

Short Answer Questions-I

4. (1 point) Calculate: $\lim_{x\to\infty} \frac{x^3 - 68x^2 + 20}{4x^3 - 2x^2 + 1009}$.

5. (1 point) Compute $\frac{dy}{dx}$ if $y = 2x + \frac{1}{\sqrt{x}}$.

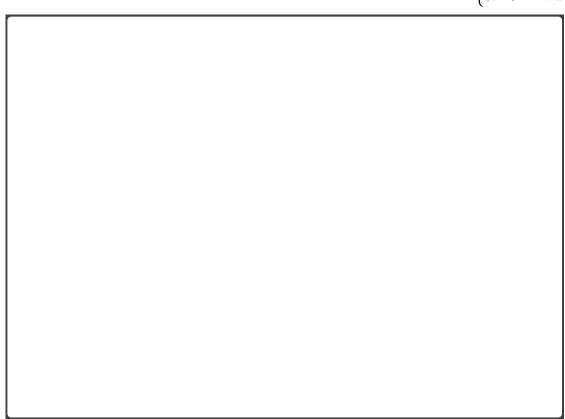


6. (1 point) Compute the inverse of the following function: $f(x) = \frac{2x-1}{2x+1}$.

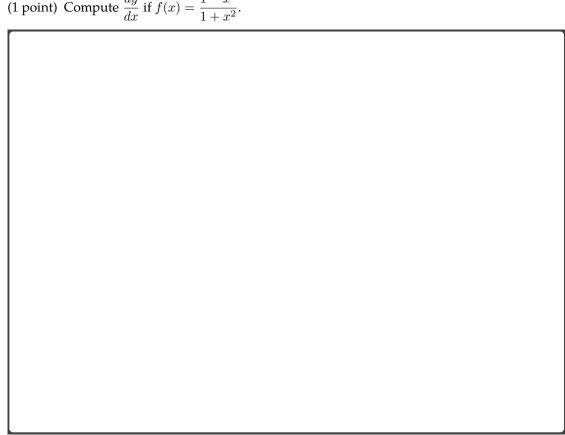
Short Answer Questions-II

7. (2 points) There are two parts in this question.

(a) (1 point) Calculate a such the following function is continuous for all x. $f(x) = \begin{cases} ax - 1 & \text{if } x \leq 1 \\ 3x^2 + 1 & \text{if } x > 1 \end{cases}$



(b) (1 point) Compute $\frac{dy}{dx}$ if $f(x) = \frac{1-x^2}{1+x^2}$.



			p = 8000 - 100	Ч	
) (1 point)	Compute the m	narginal revenue	·.		
) (1 point)	Calculate the ap	pproximate reve	nue from selling th	e 41st ticket.	

8. (2 points) The demand function for Lollafalooda tickets is given by

Rough Work