

Name:	Roll Number:

Quiz 03 (Set C)  
SIAS, Krea University (AY 2025-26)  
Mathematical Methods for Economics (Course Code: ECON211)  
05 September 2025

Maximum Points: 10Duration: 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) Let  $f(x) = 200$ . Then,

- A.  $f^{-1}(x) = 200$
- B.  $f^{-1}(x)$  does not exist.
- C.  $f^{-1}(x) = \frac{1}{200}$
- D.  $f^{-1}(x) = \frac{1}{200x}$

**Answer:** \_\_\_\_\_

2. (1 point) Consider the following statements:

**Statement (i):**

$$\lim_{x \rightarrow -3} |x + 3| = 0.$$

**Statement (ii):**

$$f(x) = |x + 3| \text{ is differentiable at } x = -3.$$

- 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:** \_\_\_\_\_

3. (1 point) If  $f(x) = x^2$ ,  $g(x) = x^2 + 2$  and  $h(x) = (x + 2)^2$ , then

- A. the graph of  $g(x)$  can be obtained by shifting  $f(x)$  downwards by 2 units.
- 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 2 units.
- D. the graph of  $g(x)$  can be obtained by shifting  $f(x)$  to the right by 2 units.

**Answer:** \_\_\_\_\_

### Short Answer Questions-I

4. (1 point) Compute the inverse of the following function:  $f(x) = \frac{5x - 1}{5x + 1}$ .

5. (1 point) Calculate:  $\lim_{x \rightarrow \infty} \frac{2x^3 - 88x^2 + 2000}{5x^3 - 2x^2 + 10}$ .

6. (1 point) Compute  $\frac{dy}{dx}$  if  $y = 3x + \frac{6}{\sqrt{x}}$ .

## 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  $x$ .  $f(x) = \begin{cases} 2ax - 1 & \text{if } x \leq 1 \\ 6x^2 + 3 & \text{if } x > 1 \end{cases}$

- (b) (1 point) Compute  $\frac{dy}{dx}$  if  $f(x) = \frac{3 - x^2}{3 + x^2}$ .

8. (2 points) The demand function for tickets on *Ruinmytrip* is given by

$$p = 400 - 0.02q$$

(a) (1 point) Compute the marginal revenue.

(b) (1 point) Calculate the approximate revenue for the 2001st ticket.

