Name:	Roll Number:

Quiz 02 (Set B)

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

Maximum Points: 10 **Duration**: 30 minutes

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): The set of equations: $\boxed{2x + 3y = 5 \text{ and } 4x - 6y = -2}$ has a unique solution.

   Statement (ii): The set of equations: $\boxed{4x - y = 3 \text{ and } -28x + 7y = 21}$ does not have any solution.

   A. Both (i) and (ii) are correct.

   B. Statement (i) is correct but statement (ii) is incorrect.

   C. Statement (ii) is correct but statement (i) is incorrect.

   D. Both statements are incorrect.

   Answer: _____

2. (1 point) Identify the element a_{43} in the following matrix A

$$A = \begin{bmatrix} 0 & 1 & 3 & 6 \\ 1 & 2 & 3 & 9 \\ 7 & 5 & 2 & 0 \\ 9 & 4 & 1 & 5 \end{bmatrix}$$

   A. 0

   B. 1

   C. 2

   D. 3

   Answer: _____

3. (1 point) Find the roots of the following quadratic equation: $2x^2 + 32x + 128 = 0$.

   A. $(-16, 4)$

   B. $(-8, 8)$

   C. (-8)

   D. $(4, -16)$

   Answer: _____

Short Answer Questions-I

4. (1 point) Solve for x and y:

$$3x - 4y = -2$$
$$6x + 2y = 6$$

5. (1 point) Let $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & -1 \\ 6 & 7 \end{bmatrix}$. Compute BA.

6. (1 point) There are two matrices A and B such that:

$$A = \begin{bmatrix} x+5 & 0 & 3 \\ 4 & 0.6y & 8 \end{bmatrix}, \quad B = \begin{bmatrix} 6 & 5 & 0.5 \\ 10 & 2 & -10 \end{bmatrix}, \quad 2A + B = \begin{bmatrix} 16 & 5 & 6.5 \\ 18 & 5 & 6 \end{bmatrix}$$

Compute x and y.

Short Answer Questions-II

7. (2 points) Use Cramer's rule **OR** matrix inverse method to solve the following set of equations:

$$9x_1 + 7x_2 = 16$$
$$4x_1 - 5x_2 = -1$$

8. (2 points) Given the following supply and demand equations:

$$\text{Supply: } P = 2Q_S^2 + 11Q_S + 9$$
$$\text{Demand: } P = -Q_D^2 - 7Q_D + 57$$

Calculate the equilibrium price and quantity.

Rough Work