

No Work  $\Leftrightarrow$  No Points

Use Pencil Only  $\Leftrightarrow$  Be Neat & Organized

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1. (6 points) Solve by cramer's rule.

$$\begin{cases} 3x - 5y = 14 \\ 2x + 3y = -18 \end{cases}$$

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1. \_\_\_\_\_

2. (4 points) Solve by using the quadratic formula:  $4x^2 - 3x - 1 = 0$

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2. \_\_\_\_\_

3. (3 points) Evaluate:

$$\begin{vmatrix} 2 & -3 & 4 \\ -2 & 3 & -1 \\ 5 & 1 & 0 \end{vmatrix}$$

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3. \_\_\_\_\_

4. (8 points) Solve by using Gaussian elimination method:

$$\begin{cases} x + 2y + 3z = 3 \\ 3x + y - z = 2 \\ 2x - y - 4z = -1 \end{cases}$$

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4. \_\_\_\_\_

5. (5 points) A group of 20 adults and kids paid a total of \$192 to go to the zoo. Adult's ticket was sold at \$12 and kids ticket was sold at \$8. Find the number adults and the number of kids in this group by using gaussian elimination method.

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5. \_\_\_\_\_

6. (6 points) Solve by inverse matrix method:

$$\begin{cases} x - y + 4z = 10 \\ 2x + 3y = -6 \\ 3x + 2y + 4z = 2 \end{cases}$$

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6. \_\_\_\_\_

7. (5 points) The sum of two numbers is 75. The difference of three times one of them and twice the other one is 0. Find both numbers by using inverse matrix method.

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7. \_\_\_\_\_

8. (5 points) Two angles are supplementary. The sum of five times of one of them and twice the other one is  $675^\circ$ . Use system of linear equations in two variables and any method to find the measure of both angles.

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8. \_\_\_\_\_

9. (8 points) Recommendation by doctors is not to take more than 2400 mg of sodium per day. Lisa had a total of 1030 mg of sodium, David had a total of 2420 mg of sodium, and Mark had a total of 1910 mg of sodium. Use the table below and system of linear equations in three variables to determine the amount of sodium per set serving for each item. Use any method to solve the system.

	Slice of pizza	Single dip ice cream	One can of soda
Lisa	1	1	1
Mark	2	1	2
David	3	0	2

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9. \_\_\_\_\_