

Read each question carefully. **Give exact answers.** You must show all work in order to receive full credit. **Circle your final answers for 6-11.**

Part I (2 points each)

Match the expression on the left with the property on the right. Write legibly; if I can't tell what letter you wrote, it will be marked wrong.

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|--|-------------------------|
| ___ 1. method of solving a linear system of equations | a. inverse |
| ___ 2. solution to a system of equations in 2 variables | b. ordered pair |
| ___ 3. goal of elimination method for a system in 3 variables | c. Gaussian elimination |
| ___ 4. a one-to-one function that "undoes" another function | d. triangular form |
| ___ 5. line that graphs of inverse functions are symmetric with respect to | e. $y = x$ |

Part II (15 points each)

6. Find the inverse.

$$f(x) = \frac{x - 1}{x + 1}$$

7. Verify that f and g are inverses.

$$f(x) = \frac{x-5}{x}, \quad g(x) = \frac{5}{1-x}$$

8. Solve the system of equations by substitution.

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

9. Solve the system of equations by elimination.

$$\begin{cases} x - 3y + 4z = 4 \\ 2x + 3y + 2z = 14 \\ -x + 12y - 6z = 2 \end{cases}$$

10. Solve the system of equations.

$$\begin{cases} 3x + 6y = 11 \\ 2x + 4y = 9 \end{cases}$$

11. Solve the system of equations.

$$\begin{cases} 5x - 4y - 3z = 0 \\ 2x + y + 2z = 0 \\ x - 6y - 7z = 0 \end{cases}$$

Bonus: Solve the system of equations.

$$\begin{cases} (x + 2)^2 + (y - 3)^2 = 10 \\ (x - 3)^2 + (y + 1)^2 = 13 \end{cases}$$