

Precalculus Unit 10 – 10.3 Homework Worksheet
Multivariable Linear Systems

1. Determine whether each ordered pair is a solution of the system of equations.

$$\begin{cases} 3x + 4y - z = 17 \\ 5x - y + 2z = -2 \\ 2x - 3y + 7z = -21 \end{cases}$$

- (a) (1, 5, 6) (b) (-2, -4, 2)
(c) (1, 3, -2) (d) (0, 7, 0)

2. Use back-substitution to solve the system of equations.

$$\begin{cases} 2x - y + 5z = 16 \\ y + 2z = 2 \\ z = 2 \end{cases}$$

3. Solve the following system of equations.

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

4. Solve the following system of equations.

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

5. Solve the following system of equations.

$$\begin{cases} 2x + 4y + z = -4 \\ 2x - 4y + 6z = 13 \\ 4x - 2y + z = 6 \end{cases}$$

6. Solve the following system of equations.

$$\begin{cases} 3x - 3y + 6z = 6 \\ x + 2y - z = 5 \\ 5x - 8y + 13z = 7 \end{cases}$$

7. Write the partial fraction decomposition for the rational expression.

$$\frac{x - 2}{x^2 + 4x + 3}$$

8. Write the partial fraction decomposition for the rational expression.

$$\frac{x^2 + 12x - 9}{x^3 - 9x}$$

9. Write the partial fraction decomposition for the rational expression.

$$\frac{x^2 - x + 2}{x(x - 1)^2}$$

10. Write the partial fraction decomposition for the rational expression.

$$\frac{x^3 + 2x^2 - x + 1}{x^2 + 3x - 4}$$