College Algebra
Chapter 5/6 Test

---

1. Solve using substitution: $\begin{aligned} x^2 + y^2 &= 34 \\ x - y &= 2 \end{aligned}$

2. Solve using Addition (Elimination): $\begin{aligned} x^2 + y^2 &= 5 \\ 2x^2 - 3y^2 &= -10 \end{aligned}$

3. Solve the following system of equations: $\begin{aligned} 5w - 3x + 2y - z &= 4 \\ w + 4x - 3y - 5z &= -2 \\ 4w - x - y - z &= 12 \\ 7w + 3x - 2y + z &= -8 \end{aligned}$

4. Solve the following system of equations: $\begin{aligned} 5a - 2b + 3c - d + e &= 2 \\ 9a + 3b - c - d + 5e &= 3 \\ a - b - c + 10d - 2e &= -4 \\ 7a + 2b - c - d + 4e &= -8 \\ 3a + 2b - c - d + 5e &= -2 \end{aligned}$

5. Solve the following system of equations: $\begin{aligned} 2x + 3y - z &= 4 \\ 5x - 4y - 2z &= 1 \\ 4x + 6y - 2z &= 8 \end{aligned}$

6. Solve the following system of inequalities: $\begin{aligned} y &> x^2 - 3 \\ y &< 2x + 1 \end{aligned}$

College Algebra
Chapter 5/6 Test

Given the following three matrices:

$$A=\begin{bmatrix}3 & -2 & 1\\ 4 & -5 & 7\\ 2 & -3 & 4\end{bmatrix}, B=\begin{bmatrix}8 & 2 & -1\\ 3 & -4 & 7\\ -6 & 2 & 1\end{bmatrix}, C=\begin{bmatrix}10 & -1 & 2\\ 3 & -5 & -9\\ 1 & 4 & 2\end{bmatrix}$$

7. Find:
   a) A+B
   b) A-B
   c) -7A
   d) 10A-2B

8. Find:
   a) $|B|$
   b) C^{-1}

9. Perform the following row operations:
   a) $3R_1 + R_2$ on A
   b) $-2R_2 + R_3$ on C

10. Find the determinant (by hand) of: $\begin{vmatrix}5 & -1 & 3\\ -2 & 1 & 7\\ 2 & -6 & 2\end{vmatrix}$