

Practice College Algebra Semester 2 Final Exam
Non-Calculator Portion!

1. Find the value of y in the solution of the system of equations:

$$-2x + 3y = 5$$

$$3x - 2y = 0$$

2. Given the system of equations, use Cramer's rule to find x .

$$4x + 2y = 8$$

$$5x - y = 17$$

3. Find AB if $A = \begin{bmatrix} 2 & -1 & 0 \\ 3 & 4 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 4 & 3 \\ 5 & -1 \end{bmatrix}$

4. Find the determinant of A if $A = \begin{bmatrix} -3 & -2 \\ -10 & 12 \end{bmatrix}$

5. Find the inverse of $A = \begin{bmatrix} 3 & 2 \\ 1 & 4 \end{bmatrix}$

6. Determine which of the following matrices have inverses:

a. $\begin{bmatrix} 1 & -7 \\ 2 & 14 \end{bmatrix}$

b. $\begin{bmatrix} 2 & -7 \\ -4 & 14 \end{bmatrix}$

c. $\begin{bmatrix} -6 & 9 \\ 4 & -6 \end{bmatrix}$

d. $\begin{bmatrix} 4 \\ 1 \\ 3 \end{bmatrix}$

7. Find the sum: $\sum_{i=1}^5 (2i + 1)$

8. Find the sum: $\sum_{n=3}^6 \frac{3}{n-2}$

9. What are the first five terms of the arithmetic sequence with $a_3 = 10$ and $a_{12} = 46$.

a. 3, 9, 27, 81, 243

b. 3, 7, 11, 15, 19

c. 2, 8, 32, 128, 512

d. 2, 6, 10, 14, 18

10. Find the ninth term of the arithmetic sequence with $a_1 = 4$, and $d = 10$. (assume n begins with 1)

a. 94

b. 84

c. 46

d. 49