

Find the inverse of each matrix. If it does not exist, write "No Inverse".

1. 
$$\begin{bmatrix} 3 & 1 \\ -4 & 2 \end{bmatrix}$$

2. 
$$\begin{bmatrix} 4 & 5 \\ -4 & -3 \end{bmatrix}$$

3. 
$$\begin{bmatrix} 4 & 6 \\ 6 & 9 \end{bmatrix}$$

4. 
$$\begin{bmatrix} 2 & 5 \\ -1 & 3 \end{bmatrix}$$

5. 
$$\begin{bmatrix} -4 & 7 \\ 8 & 1 \end{bmatrix}$$

6. 
$$\begin{bmatrix} 2 & 0 \\ 3 & 5 \end{bmatrix}$$

7. 
$$\begin{bmatrix} 2 & -5 \\ 3 & 1 \end{bmatrix}$$

8. 
$$\begin{bmatrix} -1 & 3 \\ 4 & -7 \end{bmatrix}$$

# Matrices

## Day 2 Homework

Name \_\_\_\_\_

Solve the linear system.

1.  $9x + 2y = 7$   
 $4x - 3y = 42$

2.  $-x - 12y = 44$   
 $12x - 15y = -51$

3.  $4x - 5y = 13$   
 $2x - 7y = 24$

4.  $x + 2y - 3z = -2$   
 $x - y + z = -1$   
 $3x + 4y - 4z = 4$

Find the inverse of the matrix if it exists.

5.  $\begin{bmatrix} -7 & -2 \\ -4 & 1 \end{bmatrix}$

6.  $\begin{bmatrix} 11 & -3 \\ -9 & 3 \end{bmatrix}$

7.  $\begin{bmatrix} -8 & -4 \\ 4 & 2 \end{bmatrix}$

8.  $\begin{bmatrix} 8 & 6 \\ 3 & 2 \end{bmatrix}$

Solve the matrix equation for the variable matrix:

9.  $\begin{bmatrix} -5 & -13 \\ 0 & 5 \end{bmatrix} X = \begin{bmatrix} 3 & 1 \\ -4 & 0 \end{bmatrix}$

10.  $\begin{bmatrix} 2 & 4 \\ 0 & 1 \end{bmatrix} X = \begin{bmatrix} 4 & 0 & 6 \\ 3 & -1 & 5 \end{bmatrix}$

11.  $\begin{bmatrix} 3 & 7 \\ 1 & 4 \end{bmatrix} X + \begin{bmatrix} 8 & 5 \\ 1 & 15 \end{bmatrix} = \begin{bmatrix} 7 & -3 \\ -2 & -9 \end{bmatrix}$

12.  $\begin{bmatrix} -1 & 2 \\ -4 & 6 \end{bmatrix} X - \begin{bmatrix} 2 & 1 \\ 3 & 0 \end{bmatrix} = \begin{bmatrix} 3 & -2 \\ 1 & -1 \end{bmatrix}$

Find the area of the triangle with the given vertices.

13. A(3,6), B(3,0), C(1,3)

14. A(-4,2), B(3,-1), C(-2,-2)

Write the linear system as a matrix equation and then use an inverse matrix to SOLVE.

15.  $3x + y = 8$   
 $5x + 2y = 11$

16.  $2x + 7y = -53$   
 $x + 3y = -22$

17.  $5x - 7y = 54$   
 $x = -3y - 22$

18.  $x + 2y = -9$   
 $-2x - 3y = 14$

19.  $9x - 5y = 43$   
 $2y = 2x - 22$

20.  $x - y - 3z = 9$   
 $5x + 2y + z = -30$   
 $-3x - y = 4$   
 $A^{-1} = \begin{bmatrix} 1 & 3 & 5 \\ -3 & -9 & -16 \\ 1 & 4 & 7 \end{bmatrix}$