

1. Use an augmented matrix and elementary row operations to solve the system of linear equations.

$$\begin{aligned} -3x - 3y &= 3 \\ -3x - 2y &= 12 \end{aligned}$$

A.  $x = -8$   
 $y = 11$

B.  $x = -6$   
 $y = 13$

C.  $x = -7$   
 $y = 12$

D.  $x = -14$   
 $y = 5$

E.  $x = -13$   
 $y = 6$

F. There is no solution.

G. There are infinitely many solutions.

H.  $x = -10$   
 $y = 9$

2. A small boat can go 21 km downstream in 2 hr but only 18 km upstream in 2 hr. Determine the rate of the boat and the rate of the current.

A. The speed of the boat is 9.4 km/hr and the speed of the current is 1.6 km/hr.

B. The speed of the boat is 9.8 km/hr and the speed of the current is 0.8 km/hr.

C. The speed of the boat is 10.3 km/hr and the speed of the current is 0.7 km/hr.

D. The speed of the boat is 10.5 km/hr and the speed of the current is 0.4 km/hr.

E. The speed of the boat is 10.6 km/hr and the speed of the current is 0.3 km/hr.

F. The speed of the boat is 9.7 km/hr and the speed of the current is 1.5 km/hr.

G. The speed of the boat is 9.1 km/hr and the speed of the current is 1.3 km/hr.

H. The speed of the boat is 9.5 km/hr and the speed of the current is 0.1 km/hr.

3. Write a system of linear equations in  $x$  and  $y$  that is represented by the augmented matrix.  $\left[ \begin{array}{cc|c} 4 & -6 & 0 \\ 1 & -2 & 9 \end{array} \right]$

A.  $x - 2y = 0$   
 $4x - 6y = 9$

B.  $6x - y = 0$   
 $2x - 4y = 9$

C.  $4x - y = 9$   
 $6x - 2y = 0$

D.  $4x - 6y = 0$   
 $x - 2y = 9$

E.  $6x - 2y = 9$   
 $x - 4y = 0$

F.  $x - 4y = 9$   
 $2x - 6y = 0$

G.  $2x - 4y = 0$   
 $6x - y = 9$

H.  $2x - 6y = 9$   
 $4x - y = 0$

4. Write a system of linear equations in  $x$  and  $y$  that is represented by the augmented matrix.  $\left[ \begin{array}{cc|c} 1 & 0 & 8 \\ 0 & 1 & 7 \end{array} \right]$

A.  $0y = 8$   
 $x + y = 7$

B.  $0y = 7$   
 $x + y = 8$

C.  $x = 8$   
 $y = 7$

D.  $y = 8$   
 $x = 7$

E.  $x + y = 8$   
 $0y = 7$

F.  $x + y = 7$   
 $x + y = 8$

G.  $y = 7$   
 $y = 8$

H.  $x = 7$   
 $y = 8$

5. Write an augmented matrix for the system of equations.

$$x = 8$$

$$y = 5$$

A.  $\left[ \begin{array}{cc|c} 0 & 0 & 8 \\ 1 & 1 & 5 \end{array} \right]$

B.  $\left[ \begin{array}{cc|c} 1 & 0 & 5 \\ 0 & 1 & 8 \end{array} \right]$

C.  $\left[ \begin{array}{cc|c} 0 & 1 & 5 \\ 0 & 1 & 8 \end{array} \right]$

D.  $\left[ \begin{array}{cc|c} 0 & 1 & 8 \\ 1 & 0 & 5 \end{array} \right]$

E.  $\left[ \begin{array}{cc|c} 1 & 0 & 8 \\ 0 & 1 & 5 \end{array} \right]$

F.  $\left[ \begin{array}{cc|c} 1 & 1 & 5 \\ 1 & 1 & 8 \end{array} \right]$

G.  $\left[ \begin{array}{cc|c} 0 & 0 & 5 \\ 1 & 1 & 8 \end{array} \right]$

H.  $\left[ \begin{array}{cc|c} 1 & 1 & 8 \\ 0 & 0 & 5 \end{array} \right]$

6. Use an augmented matrix and elementary row operations to solve the system of linear equations.

$$2x + 3y = 2$$

$$-2x - 2y = 6$$

A. There is no solution.

B.  $x = -14$   
 $y = 5$

C.  $x = -11$   
 $y = 8$

D.  $x = -8$   
 $y = 11$

E.  $x = -9$   
 $y = 10$

F. There are infinitely many solutions.

G.  $x = -15$   
 $y = 4$

H.  $x = -12$   
 $y = 7$

7. Write a system of linear equations in  $x$  and  $y$  that is represented by the augmented matrix.  $\left[ \begin{array}{cc|c} 4 & 7 & 2 \\ 1 & -6 & 5 \end{array} \right]$

- A.  $6x + 4y = 2$   
 $7x - y = 5$
- B.  $x + 4y = 5$   
 $6x - 7y = 2$
- C.  $4x + 7y = 2$   
 $x - 6y = 5$
- D.  $4x + y = 5$   
 $7x - 6y = 2$
- E.  $x + 6y = 2$   
 $4x - 7y = 5$
- F.  $7x + 6y = 5$   
 $x - 4y = 2$
- G.  $7x + y = 2$   
 $6x - 4y = 5$
- H.  $6x + 7y = 5$   
 $4x - y = 2$

8. Use an augmented matrix and elementary row operations to solve the system of linear equations.

$$\begin{aligned} x + 3y &= 3 \\ -x - 3y &= -3 \end{aligned}$$

A. There are infinitely many solutions.

- B.  $x = -2$   
 $y = 3$
- C.  $x = 1$   
 $y = 6$
- D.  $x = -3$   
 $y = 2$
- E.  $x = -4$   
 $y = 1$
- F.  $x = -5$   
 $y = 0$
- G. There is no solution.
- H.  $x = 3$   
 $y = 8$