

Solve each system using substitution or elimination.

1.)  $3x - 6y = 2$   
 $5x + 4y = 1$

2.)  $2x + y - 3z = 0$   
 $-2x + 2y + z = -7$   
 $3x - 4y - 3z = 7$

Solve each system using Cramer's Rule. You MUST show the setup!!

3.)  $2x + 4y = 16$   
 $3x - 5y = -9$

4.)  $x + 4y - 3z = -8$   
 $3x - y + 3z = 12$   
 $x + y + 6z = 1$

Solve each system using matrix equations.

5.)  $2x + y = 8$   
 $x + y = 5$

6.)  $3x + 3y + z = 8$   
 $x + 2y + z = 5$   
 $2x - y + z = 4$

Perform each row operation on the given augmented matrix.

7.) 
$$\left[ \begin{array}{cccc} 1 & -3 & -4 & -6 \\ 2 & -5 & 6 & -6 \\ -3 & 1 & 4 & 6 \end{array} \right]$$

a.)  $R_2 = -2r_1 + r_2$

b.)  $R_3 = 3r_1 + r_3$

Find the value of each determinant.

$$8.) \begin{vmatrix} -5 & 7 \\ 2 & 3 \end{vmatrix}$$

$$9.) \begin{vmatrix} 1 & 2 & -1 \\ 4 & 3 & 8 \\ 2 & 5 & 1 \end{vmatrix}$$

Find the inverse of each matrix. Round answers to two decimal places.

$$10.) \begin{bmatrix} -5 & 7 \\ 2 & 3 \end{bmatrix}$$

$$11.) \begin{bmatrix} 1 & 2 & -1 \\ 4 & 3 & 8 \\ 2 & 5 & 1 \end{bmatrix}$$

Given the matrices below, perform the indicated operations if possible. If not possible, state not possible.

$$A = \begin{bmatrix} 5 & 1 & 7 \\ 2 & 0 & 3 \end{bmatrix} \quad B = \begin{bmatrix} 6 & 1 & 4 \\ 2 & 9 & -1 \end{bmatrix} \quad C = \begin{bmatrix} 8 & 4 \\ 5 & 3 \\ -6 & 1 \end{bmatrix}$$

12.)  $AB$

13.)  $BC$

14.)  $A + B$

15.)  $2C + A$

Solve for x:

$$16.) \begin{vmatrix} 3 & 2 & 4 \\ 1 & x & 5 \\ 0 & 1 & -2 \end{vmatrix} = 0$$

Write the augmented matrix for the system.

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

18.) Find the function  $y = ax^2 + bx + c$  whose graph contains the points  $(1, 2)$ ,  $(-2, -7)$ ,  $(2, -3)$ .

9.) A store sells cashews for \$5.00 per pound and peanuts for \$1.50 per pound. The manager decides to mix 30 pounds of peanuts with some cashews and sell the mix for \$3.00 per pound. How many pounds of cashews should be mixed with the peanuts so that the mixture will produce the same revenue as would selling the nuts separately.

1.) A Florida juice company completes the preparation of its products by sterilizing, filling, and labeling bottles. Each case of orange juice requires 9 minutes for sterilizing, 6 minutes for filling, and 1 minute for labeling. Each case of grapefruit juice requires 10 minutes for sterilizing, 4 minutes for filling, and 2 minutes for labeling. Each case of tomato juice requires 12 minutes for sterilizing, 4 minutes for filling and 1 minute for labeling. If the company runs the sterilizing machine for 398 minutes, the filling machine for 164 minutes and the labeling machine for 58 minutes, how many cases of each type of juice are prepared?

PRECALC REVIEW SEC 10.1-10.4 (ANSWERS)

1)  $x = 1/3, y = -1/6$

2)  $x = 5/13, y = -7/13, z = 35/13$

3)  $x = 2, y = 3$

4)  $x = 3, y = -8/3, z = 1/9$

5)  $x = 3, y = 2$

6)  $x = 8/7, y = 5/7, z = 17/7$

7) a)  $\begin{bmatrix} 1 & -3 & -4 & -6 \\ 0 & 1 & 14 & 6 \\ -3 & 1 & 4 & 6 \end{bmatrix}$

b)  $\begin{bmatrix} 1 & -3 & -4 & -6 \\ 2 & -5 & 6 & -6 \\ 0 & -8 & -8 & -12 \end{bmatrix}$

8) -29

9) -27

10)  $\begin{bmatrix} -3/29 & 7/29 \\ 2/29 & 5/29 \end{bmatrix}$

11)  $\begin{bmatrix} 1.37 & .26 & -.70 \\ -.44 & -.11 & .44 \\ -.52 & .04 & .19 \end{bmatrix}$

$\sigma$   
 $\begin{bmatrix} -.10 & .24 \\ .07 & .17 \end{bmatrix}$

12) NOT POSSIBLE

13)  $\begin{bmatrix} 29 & 34 \\ 67 & 34 \end{bmatrix}$

14)  $\begin{bmatrix} 11 & 2 & 11 \\ 4 & 9 & 2 \end{bmatrix}$

15) NOT POSSIBLE

16)  $x = -7/6$

17)  $\begin{bmatrix} 3 & 4 & | & 7 \\ 4 & -2 & | & 5 \end{bmatrix}$

18)  $y = 2x^2 + x + 3$

19) 22.5 lbs cashews  
30 lbs peanuts

20) 6 cases orange juice  
20 cases grapefruit juice  
12 cases tomatoe juice