GSE PreCalculus: Unit 1 - Matrices Name_____
WS 1.7: Solving Systems using Matrices Date_____

Solving matrix equations – inverses required.

1) $\begin{bmatrix} 4 & -2 \\ -7 & 2 \end{bmatrix} X = \begin{bmatrix} -6 \\ 12 \end{bmatrix}$

2) $\begin{bmatrix} -1 & 1 \\ 5 & -2 \end{bmatrix} C = \begin{bmatrix} 4 \\ -26 \end{bmatrix}$

3) $\begin{bmatrix} 2 & -3 \\ -5 & 5 \end{bmatrix} Z = \begin{bmatrix} -1 \\ 20 \end{bmatrix}$

4) $\begin{bmatrix} 1 & -9 \\ 1 & 0 \end{bmatrix} Z = \begin{bmatrix} -35 \\ -8 \end{bmatrix}$

Write the matrix equation

5. x + 3y – 4z = 5
-2x – y + 2z = -3
3x + 2y – 5z = 4

6. 2x + y – 4z = 10
-x + 4y + 6z = -12
7x – 6z = 14

Solve the matrix equation

7. $\begin{pmatrix} 6 & 3 & -4 \\ -4 & 5 & 6 \\ 3 & 2 & -1 \end{pmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 \\ 2 \\ 5 \end{bmatrix}$

8. $\begin{pmatrix} 0 & -5 & 10 \\ 8 & 5 & -1 \\ 3 & 6 & -3 \end{pmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -5 \\ 7 \\ 11 \end{bmatrix}$

Solve the system of equations.

9. $\begin{aligned} x + 3y &= 6 \\ 2x - 3y &= 3 \end{aligned}$

10. $\begin{aligned} 3x + 2y &= 4 \\ 3x + y &= 2 \end{aligned}$

11. $\begin{aligned} 2x + 2z &= 2 \\ 5x + 3y &= 4 \\ 3y - 4z &= 4 \end{aligned}$

12. $\begin{aligned} 2x + 4y + z &= 1 \\ x - 2y - 3z &= 2 \\ x + y - z &= -1 \end{aligned}$

Name_____

Date_____

Applications – Write the system and solve.

3.) Nicole and Lindsey are selling tickets for admission to the show choir and collect a total of $104. Twenty-one tickets were sold. Admission prices are $6 for adults and $4 for children. How many adult tickets and how many children tickets did they sell?

4.) Ashley's family goes to a restaurant for dinner. There are 6 people in her family. Some order the chicken dinner for $14.80 and some order the steak dinner for $17. If the total bill was $91, how many people ordered each type of dinner?

5.) Michael bought the meat for last Saturday's tailgate. A package of hot dogs cost $1.60 and a package of hamburger cost $5. He bought a total of 8 packages of meat and spent $23. How many packages of hamburger meat did he buy?

6.) Brendan orders 3 pizzas and 2 orders of breadsticks for a total of $29.50. Sarah orders 2 pizzas and 3 orders of breadsticks for a total of $23. How much does a pizza cost?

GSE PreCalculus: Unit 1 - Matrices

WS 1.7: Solving Systems using Matrices

Name_____

Date_____