Linear Systems & STAT – Examination III Review -Solving Matrix Equations

Name:

Date:

10)

Period:

Find the determinant of the given matrices if defined. (Show your work)

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

$$\begin{bmatrix}
-4 & 3 & 1 \\
1 & -6 & 2 \\
-1 & 1 & 4
\end{bmatrix}$$



2)
$$\begin{bmatrix} 4 & -4 \\ 2 & 0 \\ 6 & -3 \end{bmatrix}$$
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4)
$$\begin{bmatrix} 7 & 3 & 3 \\ -1 & 1 & -2 \\ -1 & -2 & 2 \end{bmatrix} \qquad \boxed{7}$$

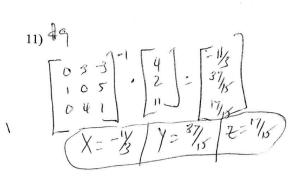
Find the inverses of the above matrices if possible. If not possible write not possible and why

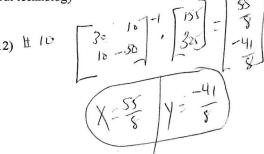
Using the given systems of equations, create a matrix equation

9)
$$3y-3z=4$$

 $x + 5z = 2$
 $4y+z=11$
 $\begin{bmatrix} 0 & 3 & -3 \\ 1 & 0 & 5 \\ 0 & 4 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix}$

Find the solution of the above matrix equations with or without technology





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1

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Suppose you want to fill 7 one-kilogram sacks with a holiday snack mix. You plan to buy apples 13) for \$1.29/kg, nuts for \$2.58/kg, and Twinkies for \$1.10/kg. You have \$25.00 and want the mix to contain three times as much of the nuts and apples as of the Twinkies by weight. How much of each ingredient should you buy?

 $\begin{cases} a+n+t=17 & \longrightarrow \text{lift what } \text{KG shies} \\ 1.29a+2.58n+1.10t=35 & \longrightarrow \text{Appendent } \text{Topped } \text{The property } \\ a+n=3t & \text{Thy le f Weight of Two west to got } \text{ where } \text{The property } \text{ where } \text{ The property } \text{ where } \text{ The property } \text{ where } \text{ The property } \text{ the property } \text{ where } \text{ The property } \text{ the property$

Explain how each equation in the system above relates to the problem. What do the variables a)

a= #ofkg of Alles "N=#ofkg of Nuts t= #ofkg of Twans

b) Create a matrix equation to solve this problem.



c) Solve the matrix equation and explain your result

14) Using a determinant find the area of a triangle with the given vertices

15) Write a system of equations for the following word problem. Using that system of equations, write a matrix equation.

> A baker is making bread. He wants to make 100 pans of bread. The kitchen has two sizes of ovens. One oven bakes 4 pans at a time and the other oven bakes 12 pans at a time. The kitchen can use 10 ovens at a time. How many times will each oven be used in order to bake the 100 pans of bread?

