Chapter 6 Quiz
Fall 2020
MATH 1050 025
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Solve the following system of equations, state how many solutions, if infinite express using formulas like (x, mx+b) or (my+b, y). HINT: Use determinants to check number of solutions.

1.
$$\begin{aligned} -4x \quad +8y \quad &= -9 \\ 6x \quad -12y \quad &= 13.5 \end{aligned}$$

2.
$$\begin{aligned} -4x \quad 8y \quad &= -9 \\ 5x \quad -10y \quad &= 20 \end{aligned}$$

3.
$$\begin{aligned} -4x \quad 8y \quad &= -28 \\ 6x \quad -10y \quad &= 38 \end{aligned}$$

Perform as much of the following Matrix Algebra as possible, if it can't be done state WHY it can't be done (best done with number of columns and rows).

4. $A = \begin{bmatrix} 1 & -1 & 2 \\ 3 & -2 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 0 & -3 \\ 2 & 4 \\ 3 & 1 \end{bmatrix}$, $C = \begin{bmatrix} 7 & 4 \\ 5 & 0 \\ -5 & 6 \end{bmatrix}$, $D = \begin{bmatrix} 1 & 3 \\ 5 & 7 \end{bmatrix}$

a) A + B

b) $B - C$

c) AB

d) BA

e) D^2

5. Use the matrix information below to solve the system. Give your answer as an ordered triple. Solve this directly using elimination, then start over and solve using the inverse. Warning: ugly middle steps possible.

$$A = \begin{bmatrix} 1 & -5 & 8 \\ 2 & -9 & 14 \\ -3 & 15 & -23 \end{bmatrix}, \quad A^{-1} = \begin{bmatrix} -3 & 5 & 2 \\ 4 & 1 & 2 \\ 3 & 0 & 1 \end{bmatrix}$$

$$\begin{array}{rcrcrcr} x & - & 5y & + & 8z & = & -9 \\ 2x & - & 9y & + & 14z & = & -19 \\ -3x & + & 15y & - & 23z & = & 25 \end{array}$$

6.4 CONTENT
NOT REQUIRED
6.Use Cramer's Rule to solve for x, y, and z.

$$\begin{aligned} 2x + y - 5z &= -12 \\ x + 3y + z &= 11 \\ x + 6y + z &= 23 \end{aligned}$$