Mathematics Review Course
Summer 2023
Problem Set 07

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Note: [Source] at the start of each problem denotes the source of the question. If there is no source, it is an original problem of my creation.

Row Echelon Form

1. [Uni. Manitoba] Reduced REF for $\left(\begin{array}{ccc|c} 2 & -3 & -2 & 3 \\ -2 & 2 & -2 & 0 \\ -1 & 3 & 3 & 2 \\ -3 & -2 & -2 & 2 \end{array}\right)$.

2. [Uni. Manitoba] Reduced REF for $\left(\begin{array}{ccc|c} -1 & 1 & -1 & -2 \\ 2 & 0 & 0 & 3 \\ -1 & 0 & -1 & -2 \\ -3 & 0 & 2 & -1 \end{array}\right)$.

Cramer's Rule

3. Solve for x, y, z given $\left(\begin{array}{ccc|c} -2 & 4 & 1 & 4 \\ -2 & 2 & 1 & -4 \\ -6 & 1 & 6 & -26 \end{array}\right)$.

4. Solve for x, y, z given $\left(\begin{array}{ccc|c} -5 & -2 & 4 & -28 \\ -5 & -3 & 6 & -27 \\ -3 & 5 & -5 & -18 \end{array}\right)$.

Eigenvalues

5. Find the Eigenvalues for $\begin{bmatrix} 2 & 2 & -2 \\ 1 & 3 & -1 \\ -1 & 1 & 1 \end{bmatrix}$.

6. Find the Eigenvalues for $\begin{bmatrix} 33 & 105 & 105 \\ 10 & 28 & 30 \\ -20 & -60 & -62 \end{bmatrix}$.