Quiz 4

MA 262
Artur's Class

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Problem 1

Suppose $\mathbf{A}$ is a square matrix.

- (a) What does "$\mathbf{A}$ is skew-symmetric" mean?

- (b) If $\mathbf{A}$ is skew-symmetric, what are its diagonal entries? (Why?)

Problem 2

If $\mathbf{A}$ is an $m \times n$ matrix and $\mathbf{b}$ is a vector in $\mathbb{R}^m$, what does it mean if the equation $\mathbf{Ax} = \mathbf{b}$ is consistent? What type of vector must $\mathbf{x}$ be for this to make sense? (That is, $\mathbf{x}$ is what length?)

Problem 3

Compute the rank of the following matrix. Assume $c \neq 0$.

$$\begin{pmatrix} a & 2a \\ b & 2b \\ c & 2c \end{pmatrix}$$