

Quiz 2

1. (5 points) Find a matrix B satisfying $\begin{pmatrix} 1 & 0 & 0 \\ 2 & 1 & -1 \\ 3 & 0 & 1 \end{pmatrix} B = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ 3 & 6 & 10 \end{pmatrix}$.

2. (5 points) Compute the determinant of $\begin{pmatrix} 1 & -2 & 5 & 2 \\ 0 & 0 & 3 & 0 \\ 2 & -6 & -7 & 5 \\ 5 & 0 & 4 & 4 \end{pmatrix}$. Is this matrix invertible?

3. (1 point) For what $a, b, c \in \mathbb{R}$ does $\begin{pmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{pmatrix}$ have linearly independent columns? (Please make the condition look as nice as possible, for instance by factoring.)