Mate1009 Algebra — Lecture 1
Homework

10 February 2021

Problem 1. Which of the following matrices are in reduced row-echelon form? If a matrix is not in reduced row-echelon form, give at least on justification — why.

(a) $\begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}$

(b) $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

(c) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

(d) $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$

(e) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$

(f) $\begin{bmatrix} 0 & 1 & 0 & 0 & 3 \\ 0 & 0 & 0 & 0 & 4 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

(g) $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 5 \end{bmatrix}$

(h) $\begin{bmatrix} 1 & -5 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

(i) $\begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$