

MAT2580 - MATLAB Introduction

February 3, 2014

Row Reduction and Echelon Forms

1. Row reduce the following matrix to reduced echelon form.

$$\begin{bmatrix} 0 & -3 & -6 & 4 & 9 \\ -1 & -2 & -2 & 3 & 5 \\ -2 & -3 & 0 & 3 & -4 \\ 1 & 4 & 5 & -9 & -7 \end{bmatrix}$$

2. Row reduce the following matrix to reduced echelon form.

$$\begin{bmatrix} 1 & -4 & 2 & 6 & 4 & 23 \\ 2 & -3 & 2 & 4 & 5 & 11 \\ 9 & -1 & 0 & 1 & 0 & -6 \\ -7 & 3 & 2 & 5 & -4 & 64 \\ -5 & 5 & 0 & -5 & 3 & -19 \end{bmatrix}$$

3. Row reduce the following matrix to reduced echelon form.

$$\begin{bmatrix} 6 & -3 & -2 & 0 & 2 & 6 \\ 4 & -8 & 8 & 2 & 8 & 50 \\ -3 & 1 & 4 & 0 & 0 & 9 \\ 0 & 0 & -4 & 7 & 7 & 42 \\ 5 & -5 & 0 & 4 & 4 & 16 \end{bmatrix}$$

4. Find the interpolating polynomial $p(t) = a_0 + a_1t$ for the data points $(1, 2)$ and $(2, -3)$. (Hint: $2 = p(1) = a_0 + a_1$.)