# MA 262 - Quiz 12 (Lessons 33)

1. Compute the Wronskian of the vector functions

$$\mathbf{x}_1(t) = \begin{bmatrix} 1 \\ t \end{bmatrix}, \quad \mathbf{x}_2(t) = \begin{bmatrix} t^2 \\ t^3 \end{bmatrix}.$$

2. Determine whether the vector functions

$$\mathbf{x}_1(t) = \begin{bmatrix} \cos(t) \\ t^3 + 1 \\ \sin(t) \end{bmatrix}, \quad \mathbf{x}_2(t) = \begin{bmatrix} 0 \\ t^2 - t \\ 0 \end{bmatrix}, \quad \mathbf{x}_3(t) = \begin{bmatrix} -\sin(t) \\ e^t \\ \cos(t) \end{bmatrix}$$

are linearly independent as vector functions on $(-\infty, \infty)$.