MA 35100

HW # 5 - due Friday, October 4

1. Page 85: **T/F Questions**: **# 1.33, 1.34, 1.35**.

2. Which subsets of V are actually subspaces of V?

(a) $W = \left\{ \begin{bmatrix} a \\ 0 \\ b \end{bmatrix} \ : \ \text{where} \ \ ab = 0 \right\} \qquad (V = \mathbb{R}^3)$

(b) $W = \{\, y(x) \in \mathcal{C}^2([0,1\,]) \ : \ y'' - 4y = 0 \,\}$

($V = \mathcal{C}^2([0,1] =$ set of all functions $y(x)$ for which y, y', y'' are continuous on [0, 1].)

3. Find a *minimal* spanning set for the following subspaces:

(a) $W = \left\{ \begin{bmatrix} p & 2p & 3q \\ q & q & (2p-q) \end{bmatrix} \in M(2,3) \ : \ p, q \in \mathbb{R} \right\}.$

(b) $W = \left\{ p(x) = a_0 + a_1 x + a_2 x^2 + a_3 x^3 \in \mathcal{P}_3 \ : \ p(1) = p(-1) \right\}.$