CSci 2033 Practice Exercises Set #15 April 27, 2018

1. (Linear data fitting) Consider the 4 points in \mathbb{R}^2 with coordinates (-1, 4); (0, 2); (1, 0), and (2, -2). Find the line $x_2 = \beta_0 + \beta_1 x_1$ that fits these points in the least-squares sense.

2. Use the classical Gram-Schmidt algorithm to find an orthonormal basis of the subspace spanned by the columns v_1 and v_2 of the matrix

$$V = \begin{bmatrix} 0 & -1 \\ 1 & 2 \\ -1 & 0 \end{bmatrix}$$