## 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

$$
V=\left[\begin{array}{cc}
0 & -1 \\
1 & 2 \\
-1 & 0
\end{array}\right]
$$

