

- (1) (5 points) Find a basis for the solution space of the following system

$$x_1 - 3x_2 + 2x_3 = 0$$

$$2x_1 + 3x_2 + 2x_3 = 0$$

$$4x_1 - 3x_2 + 6x_3 = 0.$$

- (2) (5 points) Find a basis for the vector space spanned by the vectors $\vec{v}_1 = (1, 0, 3, 2)$, $\vec{v}_2 = (-1, 1, 0, 1)$, $\vec{v}_3 = (-1, 3, 6, 7)$. *Hint: You can start by writing them as either rows or columns of a matrix.*