

Name:

Problem 1: Find a basis for, and the dimension of, the space of solutions to the system

$$\begin{aligned}x_1 - 4x_2 + 3x_3 - x_4 &= 0 \\2x_1 - 8x_2 + 6x_3 - 2x_4 &= 0\end{aligned}$$

Do not forget to prove that you really have found a basis.