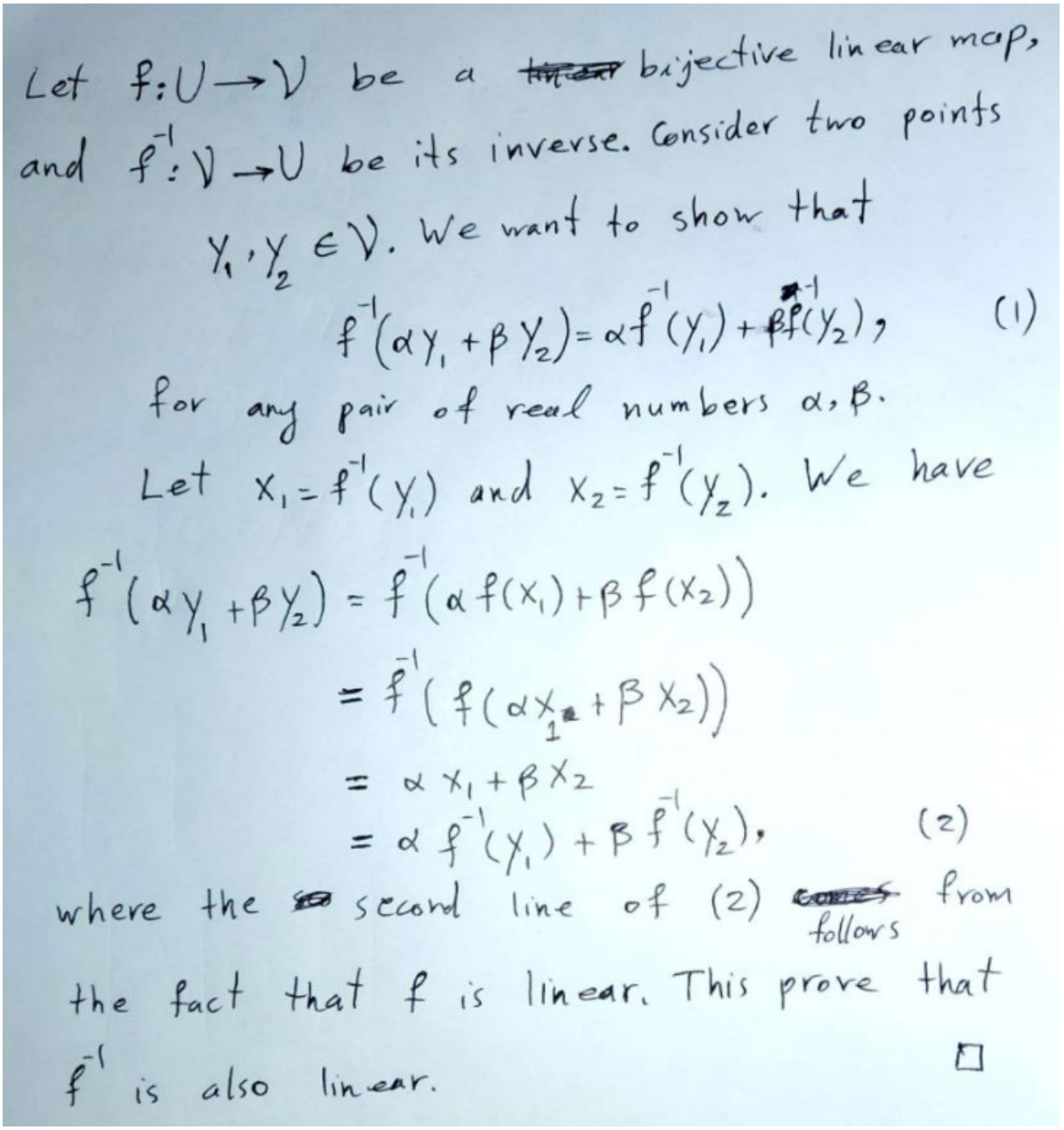
Homework 1

The following proves that the inverse of a bijective linear map is also linear. Your task is to write it under LaTeX.



You have to follow the following rules:

- Your document must contain a title, a date, and your name as the author. Also, write your affiliation as "K. N. Toosi University of Technology".
- Write all scalars with regular italic letters (a, b, α, β.
- Write all vectors with bold letters (**$\mathbf{x}$**).

- Write the spaces U, and V using calligraphic letters (\mathcal{U}).
- You can define macros to make your life easier (for instance **\newcommand{\tU}{\mathcal{U}}**)
- Use the equation, align, or similar environments for equations (1) and (2). Notice that equation (2) spans multiple lines. The equal signs must be well aligned (look at the align environment).
- Write the above in a **proof** environment. Also, state what you are trying to prove in a **theorem** or **proposition** environment.
    - look here for more details https://www.overleaf.com/learn/latex/Theorems_and_proofs
- Submit two files name **homework1.pdf** file and a **homework1.tex** file.