

Homework 6 Problem 1 Solution

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Problem 1.

The first player wins. With the first move, let us put the coefficient 1 by z in the first equation. With each of the subsequent moves, we will use the following strategy: if the second player sets a coefficient by x or y in any of the equations to a , we will set the coefficient by x or y (whichever is left) in the same equation to a as well. If the second player sets the coefficient by z in one of the equations, then we set the coefficient by z in the last equation to an arbitrary value. It is easy to see (how?) that after the game is over, $(1, -1, 0)$ will be a solution, so the first player wins.