Exercise 3-6-1

A. J. Roberts, August 11, 2020

Which of the following illustrated transformations of the plane *cannot* be that of a linear transformation? In each illustration of a transformation T, the four corners of the blue unit square ($(0,0)$, $(1,0)$, $(1,1)$, and $(0,1)$), are transformed to the four corners of the red figure ($T(0,0)$, $T(1,0)$, $T(1,1)$, and $T(0,1)$)—the 'roof' of the unit square clarifies which side goes where.