

MATH 54 – SOLUTION TO 2.3.30

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Since $T\mathbf{x} = A\mathbf{x}$ is not one-to-one, by condition (f) of the Invertible Matrix Theorem, A is not invertible. Hence by condition (i) of the Invertible matrix theorem, $T\mathbf{x} = A\mathbf{x}$ cannot map \mathbb{R}^n onto \mathbb{R}^n .