1 | In the context of Linear Algebra (Axler 3.20) #defintion surjective def

A function $T : V \to W$ is called *surjective* if its range equals W.

1.1 | #aka onto aka

1.2 | Properties

1.2.1 | A non-surjective map can be made surjective by changing the output space. (intuitive, not in book)

1.2.2 | A map to a larger dimensional space is not surjective (Axler3.24)

Suppose V and W are finite-dimensional spaces such that dim $V <$ dim U. Then no linear map from V to W is surjective.

1. Intuition Surjectivity means that every element in the output space is mapped to, and that makes this intuitively true: If the number of possible inputs (and by extension, possible outputs) is smaller dimension than the output space, how can every output be mapped to?