

I would give some examples,  $\mathbb{R}^2$  and  $\mathbb{R}^3$ , then the space of polynomials of degree less than or equal to  $n$ , and point out the common properties. Once the student is happy with those, we would say that “something” with all of those properties is called a vector space. By proving (or knowing) something about a vector space, we know it about all of those examples. The use of analogy and examples in mathematics is really important.