

Algebra is the offer made by the devil to the mathematician. "All you need to do is give me your soul: give up geometry."

Name and section: _____

1. (5 points) In the vector space V of all sequences a_0, a_1, a_2, \dots of real numbers, consider the subset S of sequences satisfying $a_{n+1} = 2a_n$ for all n . Is S a subspace of V ?

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2. (5 points) Find a basis of the vector space of polynomials p of degree at most 3 such that $p(2) = 0$.