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School algebra to linear algebra: advancing through the worlds of mathematical thinking.

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Summary: Linear algebra is a core subject for mathematics students and is required for many STEM majors. Research reveals that many students struggle grasping the more theoretical aspects of linear algebra which are unavoidable features of the course. Working with vectors and understanding new concepts through definitions, theorems, and proofs all indicate that a sudden shift has occurred, and despite carrying the name “algebra,” in many respects linear algebra is significantly more complex than school algebra. In this chapter we will employ the Framework of Advanced Mathematical Thinking (FAMT) to describe the type of thinking that is required for linear algebra students to succeed at college level.

Classification: H60 C30

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