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Teaching linear algebra: proceeding more efficiently by staying comfortably within \mathbb{Z} .

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Summary: For efficiency in a linear algebra course the instructor may wish to avoid the undue arithmetical distractions of rational arithmetic. In this paper we explore how to write fraction-free problems of various types including elimination, matrix inverses, orthogonality, and the (non-normalizing) Gram-Schmidt process.

Classification: H65

Keywords: linear algebra; integers; elimination; matrix inverse; Cayley transform; Gram-Schmidt orthogonalization

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