

Applied Algebra

Instructions Please write your name in the upper right-hand corner of the page. Use complete sentences, along with any necessary supporting calculations, to answer the following questions.

1. Consider the set of 2×2 matrices that have integer entries and determinant equal to 1. Under the operation of matrix multiplication, does this set form a semigroup? a group? Explain.

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2. Here is a partially completed group table for a certain abelian group. Fill in the rest of the table. Notice that a , the first element, is not necessarily the identity element.

	a	b	c	d
a	b			
b				d
c		c		
d	c		a	