

***Situation 19: Matrix Multiplication***  
**Prepared at UGA**  
**Center for Proficiency in Teaching Mathematics**  
**6/28/05—Amy Hackenberg**

## **Prompt**

A teacher has introduced matrices, matrix addition, and scalar multiplication of a matrix to a class studying second year algebra. In this unit of the course, the teacher has emphasized the use of matrices in the realm of business applications (i.e., storage and management of data). Later in this unit the students will learn how to use matrices to solve systems of equations. Later on in the year, matrices will be used to represent and perform transformations in the plane. So far the students have found work with matrices to be quite sensible. Then the teacher introduces matrix multiplication using a pair of 2 by 2 matrices. One student comments: “That’s kind of weird. Why is it like that—why can’t you just multiply corresponding elements like you add corresponding elements?”

*What kind of mathematical knowledge does the teacher need to consider in responding to the student’s question?*

## **Commentary**

### **Mathematical Foci**

*Mathematical Focus 1*

*Mathematical Focus 2*

*Mathematical Focus 3*

*Mathematical Focus 4*