Review 8-3

1. We can multiply two matrices A and B only if they are compatible. Explain the meaning of **compatible**.

2. What is the dimension of the matrix product AB if A is a $p \times q$ matrix and B is a $q \times r$ matrix?

3. Count the number of scalar multiplications to multiply A and B where A is a $p \times q$ matrix and B is a $q \times r$ matrix.

4. Count the number of scalar multiplications where the dimensions of A_1, A_2 and A_3 are 10×100, 100×5, and 5×50, respectively.

(1) $(A_1A_2)A_3$

(2) $A_1(A_2A_3)$

5. Fully parenthesize the product $A_1A_2A_3A_4$. (There are five distinct ways.)