If *A* is an ** matrix with m rows and n columns, then the entry in the ith row and jth column is denoted by \_\_\_\_\_\_\_ and is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ entries are  and they form the \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ matrix is a square matrix (*)* whose non-diagonal entries are all \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ matrix  is a diagonal matrix with \_\_\_\_\_\_\_ down the diagonal.

The \_\_\_\_\_\_\_\_\_\_\_\_\_ matrix has all zeros in all of its entries and is written just as 0.

Two matrices are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if they are the same \_\_\_\_\_\_\_\_ and the corresponding \_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The \_\_\_\_\_\_\_\_\_\_\_ of two matrices \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the \_\_\_\_\_\_\_\_\_ of their corresponding \_\_\_\_\_\_\_\_\_\_\_\_. Thus, two matrices can only be \_\_\_\_\_\_\_\_\_\_\_\_\_ if their \_\_\_\_\_\_\_\_\_\_ ( ) is the same. Otherwise, the sum is not defined.

Given ,  and .
Find the following, if defined.

1. *A+B* b) *B+C*

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ is the matrix whose entries are \_\_\_\_\_ times each entry of *A*.

The matrix \_\_\_\_\_\_\_\_ represents \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_ is the same as \_\_\_\_\_\_\_\_\_\_.

Given  and . Find

1. 2*A* b) *B*-2*A*





**Matrix Multiplication**



 Given  and , compute *CA*.

  

 Given  and , is the matrix *AC* defined?



Find the entries of the 3rd row of *AB,* where

We could have just ignored the rest of *A* and computed





While the following properties are all true, be careful, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ property is not true, that is, *AB* \_\_\_\_\_ *BA.*

Let  and . Show that these two matrices do not commute. That is, verify that .









If *A* is an  matrix and if *k* is a positive integer, then 

Given an  matrix *A*, then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of *A* is the matrix, denoted by \_\_\_\_\_\_\_\_ whose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are formed by the corresponding \_\_\_\_\_\_\_\_\_\_ of *A.*

Let , , and . Find











