

**** is only defined if the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of *A* equals the number of \_\_\_\_\_\_\_\_\_\_\_\_\_ in **.**

Calculate the product *A***x** = **b**





 For  Write the linear combination of  as a matrix times a vector.



Write the system of equations as a

1. Vector Equation
2. Matrix Equation
3. Augmented matrix



The equation **** has a solutions if and only if **b** is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the columns of *A*.

Let  and . Is the equation **** consistent for all possible ?





(Caveat/note: In Theorem 4, *A* is a coefficient matrix, not an augmented matrix.)

Compute **** for  and .



Compute

1. 
2. 

(This is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ matrix, denoted by *I*)

If *In* represents *n*x*n* identity matrix, then  for every 

