**Math 220  
1.2: Row Reduction and Echelon Forms  
Questions for flipped class**

**For all**

(1.2.2)

Consider the given augmented matrix of a system”

A number with black text

Description automatically generated with medium confidence

* Row reduce the matrix to reduced echelon form by hand.
* Circle the pivot positions in the final matrix and in the original matrix and list the pivot columns.
* Find the general solution of the system and write the answer in vector (parametric) form.

**For most**

(1.2.2)

Find the general solutions (by hand) of the system whose augmented matrix is given:

A number of numbers and symbols

Description automatically generated with medium confidence

Write the solution in vector (parametric) form.

(1.2.1)

Find the general solutions (by hand) of the system whose augmented matrix is given: A number on a white background

Description automatically generated

Write the solution in vector (parametric) form.

(1.2.5)  
Suppose a 3x5 coefficient matrix for a system has three pivot columns. Is the system consistent? Why or why not?

**For those who ate Wheaties this morning**

(1.2.4)

(a.)



(b.)



(c.)



(d.)



(1.2.6)

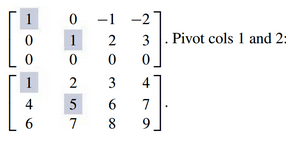
Suppose the coefficient matrix of a system of linear equations has a pivot position in every row. Explain why the system is consistent.

(1.2.7 theory questions)

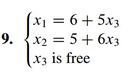
a.) How would you go about proving that a solution is unique?

b.) What is the difference between constructing a solution and showing that a solution exists?

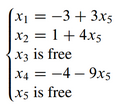
(1.2.1 solution)



(1.2.2 solution)



(1.2.3 solution)



(1.2.4 solution)

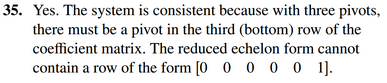
a.) F – it’s unique

b.) F – the algorithm may be used on any matrix

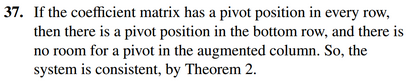
c.) T

d.) T

(1.2.5 solution)



(1.2.6 solution)



(1.2.7 theory solutions)

a.) How would you go about proving that a solution is unique?

Generally, we would assume that the solution is not unique (maybe solutions x and y) and then show that they must be equal.

b.) What is the difference between constructing a solution and showing that a solution exists?

When you construct a solution, you end with a formula for the solution. That is, you know exactly what the solution is. On the other hand, when you show that a solution exists, you may be proving that something is there, but not know anything about it other than that it exists.