Quiz 2 Solutions

Question 1 ◉ I attest to my integrity, and I understand that any suspected violation of this policy may be prosecuted to the fullest extent allowable by Georgia Tech.

Question 2 ☑ A
☑ B
☑ C
☐ D

Question 3 5

Question 4 ◉ a line in R^3

Question 5 ◉ no solution

Question 6 3 4

Explanation:

Question 2: A, B, C: all forms are within all the restrictions of a Raw Reduced echelon form

D: It does not comply with the restriction which says that all zero rows must be at the bottom whereas here the top row is a zero row.

Question 3: Since no. of rows (linear equations) > no. of columns (variables), thus the no. of pivots possible has the maximum value of the total no. of columns = 4(variables) + 1(the augmented column) = 5

Question 4: Since there is one independent variable in a system of 3 total variables, the solution set is the span of that one independent variable in R^3. Thus the solution set is a line in R^3.

Question 5: Before jumping into finding the number of independent variables, by simply looking at the given matrix, we can observe that there is a pivot in the augmented column which implies that this system of linear equations has no solution.

Question 6: There are many ways of solving this like forming a matrix and row reducing and many others but I found the simplest in this situation to be:

$$x = 8$$

$$x - y = 3 \implies y = 8 - 3 = 5$$

Thus $3x + 2y = 3(8) + 2(5) = 34$

Thus $h = 34$ for $3x + 2y = h$ to be consistent with the two equations given above.