

# Quiz 2 For DIS 210

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## Problem 1: (5 points)

Solve the matrix equation to get the general solution in (parametric vector form)

$$A = \begin{pmatrix} 0 & 1 & -1 & 1 \\ 0 & -7 & 3 & 1 \\ 1 & 3 & 0 & -3 \\ 1 & -2 & 3 & -4 \end{pmatrix}$$

$$\underline{b} = \begin{pmatrix} 1 \\ -7 \\ 4 \\ -1 \end{pmatrix}$$

Problem 2: (5 points) These are just easy calculation or decide true or false. but you should give explanation when you say something is true or false.

Result with no explanation get no point

(1) calculate  $AB$  if  $A = \begin{bmatrix} 8 & 6 \\ 5 & 4 \end{bmatrix}$   $B = \begin{bmatrix} 1 & 2 & 1 \\ 1 & 1 & 2 \end{bmatrix}$

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(2) If  $A = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 1 \end{bmatrix}$  find  $A^3$

(3) Give an example of  $3 \times 3$  matrix  $A$ , such that  $Ax=0$  have only trivial solution

(4) True or False: The equation  $Ax=b$  is homogeneous if the solution set pass through the origin

(5) True or False: A homogeneous equation is <sup>always</sup> consistent.