

**HW1 MATH2135, ASSIGNED: JAN. 18, 2019, DUE: JAN. 25, 2019**

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Please follow the following instruction:

- Staple the sheets.
- Answer in order of the asked questions.
- Be clear with your handwriting and solutions.
- Write your full name.

- (1) Which of the following is true and which one is false.
- (a) A  $5 \times 6$  matrix has six rows.
  - (b) A consistent system has only one solution.
  - (c) An inconsistent system has only one solution.
  - (d) Elementary row operations on an augmented matrix never change the solution set of the associate linear system. (I will teach this part on next Wednesday)
  - (e) Two linear system are equivalent if they have the same solution set.
- (2) For the following system:
- (a) Write the coefficient and augmented matrix.
  - (b) By row reduction algorithm find the echelon form of augmented matrix.
  - (c) By using the echelon form of augmented matrix, determine the existence and uniqueness of the solution set of the linear system. (I will teach this part on next Wednesday)

$$(i) \quad \begin{array}{rclcl} 2x_1 & +8x_2 & +4x_3 & = & 2 \\ 2x_1 & +5x_2 & +x_3 & = & 5 \\ 4x_1 & +10x_2 & -x_3 & = & 1 \end{array}$$

- (3) Solve the following questions from the textbook.  
Section 1.2: 1, 2, 3, 4, 15, 16, 25.