Name: _____

Quiz 3

This quiz is graded out of 13 marks. No books, watches, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. *(3 marks)* Find all matrices A, if any, such that

$$\begin{bmatrix} 1 & 1 \\ 2 & 2 \end{bmatrix} A = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

Question 2.[1] *(4 marks)* Solve for X when:

$$\begin{bmatrix} -13 & 1 \\ 27 & 2 \end{bmatrix} X = \begin{bmatrix} -11 & \frac{1}{2} \\ 29 & 1 \end{bmatrix} X - \begin{bmatrix} -1 & 0 \\ 2 & 2 \end{bmatrix}$$

Question 3. *(2 marks)* Determine whether the statement is true or false, and justify your answer.
The sum of two invertible matrices of the same size must be invertible.

Question 4. *(4 marks)* Show that if R is a $1 \times n$ matrix and C is an $n \times 1$ matrix, then $RC = \text{tr}(CR)$.

[1] From the Fall 2017 Dawson College Final Examination.