MATH 1210 Summer 2015 Quiz 3

Surname: _____

Given Name: _____

Student ID: _____

[5] 1. Let $A = \begin{bmatrix} 1 & -2 & -1 & 0 \\ 3 & 0 & 1 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 1 & 0 & 0 \\ 0 & 4 & 1 & -1 \end{bmatrix}$. Find a matrix X such that $AB^T - 3X = I$.

2. For the polynomial $P(x) = 8x^3 - 6x^2 + 7x - 3$,

[3] (a) Find the possible rational roots using the rational root theorem.

[3] (b) Use Descrates' Rules of Signs to find the number of possible positive and negative solutions.

[2] (c) Find a bound on the solutions using the Bounds Theorem.

[1] (d) Write the list of possible rational solutions using the restrictions from parts (a)-(c)

[6] (e) Given that $P(1/2) = 0$, solve for all roots of $P(x)$.