**MATH 3220**

**Assignment #1 – Polynomial Equivalence Evaluation**

In this assignment, you will develop an automated method to determine whether two polynomial expressions are equivalent [i.e., they are the same equation in different forms]. Your method should accept two polynomial equations as input. After running the test methodology, the application should return an output of either EQUIVALENT or NOT EQUIVALENT.

Some example polynomial pairs for testing are:

$$\left(x-1\right)\left(x+2\right)\left(x-3\right)\left(x+4\right) $$

$$24-14x-13x^{2}+2x^{3}+x^{4} \left[equivalent pair\right]$$

and

$$\left(x-1\right)\left(3x+2\right)\left(x-3\right)\left(x+4\right) $$

$$24+10x+39x^{2}+2x^{3}+3x^{4} \left[non-equivalent pair\right]$$

Your findings report must address:

* A clear and detailed description of the method to determine whether two polynomial expressions are equivalent? [Note: stating your method as a set of pseudo code statements is a good practice.]
* What is the mathematical basis for this method?
* Why is this method reliable, correct, and complete?

Submit your findings in an essay format. Use clear language in your report. Please include the references that you used and cite their use in you text [use APA citation style].

**Your findings are due next Monday.**