Pre-Calculus B 120 **Name: _____**
Unit Test – Polynomials **September 2016**

1. Factor completely each of the following expressions… [8]

a) $15x^3 + 16x^2 - x - 2$

b) $512a^{27} - b^9$

2. Divide: $\left(5x^5 - 2x^3 + x - 6\right) \div \left(x^2 - 1\right)$ [4]

3. Determine a polynomial equation that has the following roots: $x = \frac{1}{4}, \frac{-2 \pm 2\sqrt{3}}{5}$ [5]

4. Solve the following polynomial equation… $3 + 3x^2(3x + 2) = (x + 5)^2 + 2(x^2 - 10)$ [5]

5. Expand the following using the binomial theorem: $(-3x^6 + 5y^4)^4$ [5]

6. Given that the binomial expression $(2x^{10} - 3y^7)^{14}$ is expanded, determine the numerical coefficient of the term that would have the variable part $x^{60}y^{56}$. [3]

7. When the polynomial $-2px^3 + 3x^2 + 2kx + 1$ is divided by the binomial $x + 2$ the remainder is 5, and when divided by the binomial $x - 1$ the remainder is 2. Determine the values of p and k. [6]

8. Solve the following: $6^{x^3}\left(6^{5x}\right) = 36^{2x^2+1}$ [4]