[8]

- 1. Factor completely each of the following expressions...
- a)  $15x^3 + 16x^2 x 2$

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

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

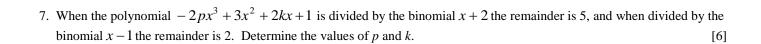
4. Solve the following polynomial equation...

$$3+3x^{2}(3x+2)=(x+5)^{2}+2(x^{2}-10)$$
 [5]

5. Expand the following using the binomial theorem:

$$\left(-3x^6 + 5y^4\right)^4$$
 [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  $x^{60}y^{56}$ .



$$6^{x^3} \left( 6^{5x} \right) = 36^{2x^2 + 1}$$

[4]