EXAM MADE EASY

Personnel Tuition Program

MA110 ASSIGNMENT

1. Use synthetic division to find the quotient and the remainder of the following.

~~(a) $x^3 - 5x^2 + 2x + 8$~~

(a) $\dfrac{x^3 - 5x^2 + 2x + 8}{x + 1}$

(b) $\dfrac{x^3 - 4x^2 + 8}{x - 2}$

(c) $\dfrac{x^4 - 2x^3 - 3x^2 + 4x - 8}{x - 2}$

2. Use long division to find the quotient and the remainder of the following.

(a) $\dfrac{8x^3 + 10x^2 + 7x + 3}{2x + 1}$

(b) $\dfrac{x^4 + 3x - 4}{x^2 + 1}$

(c) $\dfrac{4x^4 - 2x^3 - 4x + 8}{x + 1}$

total : 18 marks

Note: Submit tomorrow during classes
⇒ Answers to be written in your books *

$(x^2+1)^2$

2. Determine the value(s) of k for which $x^2 + (k + 3)x + 4k = 0$ has equal roots

3. By completing the square, find the greatest value of $12x - 7 - 3x^2$

4. Verify the identity $\sec^2\theta\csc^2\theta = \sec^2\theta + \csc^2\theta$

13. Let $f(x) = x^3 - 5x^2 + 2x + 8$ be a polynomial.

(i) Show that $x+1$ is a factor of the polynomial $f(x)$

(ii) Factorize the polynomial $f(x)$ completely.

7. Use the factor theorem to answer the following

i) is $x-2$ a factor of $3x^2-4x-4$? ii) is -3 a factor of $2x^3-3x^2-10x+3$?

iii) is $x-3$ a factor of x^4-81 ? iv) is $x-2$ a factor of x^3-8?

8 Use synthetic division to show that $g(x)$ is a