Module 6 conceptual WS

1. a) Show that 2 is a zero of $f(x) = x^3 - 4x^2 + x + 6$ using 3 different methods.

   b) Find the other zero's.

   c) Write $f(x)$ as a product of its linear factors.

2. a) Use 3 different methods to find the remainder for the following problem:

$$\frac{x^4 + 2x^2 - x + 3}{x + 2}$$

   b) Is $x + 2$ a factor of $x^4 + 2x^2 - x + 3$, if so give the remaining factors?

   c) Is (– 2) a zero of $x^4 + 2x^2 - x + 3$

   d) Write the above in the form of $p(x) = (x - a)q(x) + r$, where q(x) is the quotient and r is the remainder.

3. a) Use 3 different methods to find the remainder for the following problem:

$$\frac{x^4 - 3x^3 + 8x - 24}{x - 3}$$

   b) Is $x - 3$ a factor of $x^4 - 3x^3 + 8x - 24$, if so give the remaining factors?

   c) Is (3) a zero of $x^4 - 3x^3 + 8x - 24$