

Chapter 02

POLYNOMIALS

Example:

Divide $f(x) = 3x^2 + x^3 + 3x + 1$ by $x + 1$.

Solution:

$$\text{Divident} = x^3 + 3x^2 + 3x + 1$$

$$\text{Divisor} = g(x) = x + 1$$

$$g(x) = 0$$

$$\Rightarrow x + 1 = 0$$

$$\begin{array}{r} \text{Quotient} \\ x+1 \overline{) x^3 + 3x^2 + 3x + 1} \\ \text{Divisor} \quad \text{(Divident)} \end{array}$$

$$\therefore x = -1$$

Substitute $x = -1$ in $f(x)$

$$f(-1) = 3(-1)^2 + (-1)^3 + 3(-1) + 1$$

$$= 3(1) - 1 - 3 + 1$$

$$= 3 - 1 - 3 + 1$$

$$f(-1) = 0$$

Which is in the form of $f(a) = R$

$$\therefore \boxed{\text{Remainder} = 0}$$