Chapter 02
Polynomials

What is inside?

$f(x) = y = p(x) = x^2 + 2x + 2$ ✓

p is a polynomial in the variable 'x'

5 → Constant polynomial → a poly of deg 0.

degree-1 $x + 2$ → linear polynomial → a poly of deg 1

degree-2 $x^2 + 2x + 3$ → quadratic polynomial → a poly of deg 2

degree-3 $x^3 + 4x^2 + 2x + 3$ → Cubic polynomial → a poly of deg 3

$4x^4 + 5x^3 + 5$ → bi-qua — a poly of deg 4

— :

What are not polynomial:

$\frac{1}{x+1}$, $\sqrt{x} + 2$, $\sin(x^2 + 2)$

$\sqrt{x} + 2 = x^{1/2} + 2$

$\sin(x^2 + 2)$ ↓ not polynomial

General defn of a polynomial:-

Any expression which is of the form,

$p(x) = a_0 + a_1 x + a_2 x^2 + \dots + a_n x^n$

is a polynomial, of degree n, if $a_n \neq 0$.