Evaluating Polynomials

Monomial: a number, variable, or product of numbers and variables

Polynomial: a monomial or sum of monomials

The exponents must all be whole numbers.

Polynomial function:

$$f(x) = a_n x^n + a_{n-1}x^{n-1} + \cdots + a_1 x + a_0$$

$$f(x) = 5x^4 - 2x^3 + 6x - 7$$

The coefficients must all be real numbers.

Leading coefficient 5

Degree 4

Constant Term -7

Type

1 - Linear
2 - Quadratic
3 - Cubic
4 - Quartic

$h(x) = 21x^3 - \frac{3}{17}x^2 + 8$

Polynomial? Yes or No
Degree: 3
Type: Cubic
Leading Coefficient: 21

$f(x) = 6x^2 + 3x^3 - 5^x$

Polynomial? Yes or No
Degree:
Type:
Leading Coefficient:

because of the "x" as an exponent

$f(x) = 4x^2 + 5x - 3$

Polynomial? Yes or No
Degree: 2
Type: Quadratic
Leading Coefficient: 4

$f(x) = 8x^3 + 7x^{-4} - 4$

Polynomial? Yes or No
Degree:
Type:
Leading Coefficient:

because of the "-4" as an exponent on the 7x

Evaluating Polynomials

Evaluate: $2x^4 - 5x^3 - 8x + 3$ when $x = 4$

$2(4)^4 - 5(4)^3 - 8(4) + 3$

$2(256) - 5(64) - 8(4) + 3$

$512 - 320 - 32 + 3$

$192 - 32 + 3$

$160 + 3$

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