

March 21, 2016

5.1 Functions

* mapping

Function is a Relation iff an object from the domain is paired exactly with one object from the range

a Function consists of three parts

① Domain ② Rule ③ Range

Connect the objects in the domain with exactly one object in the range.

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mapping: $f: x \rightarrow 3x - 5$

"f" maps x to $3x - 5$

$f: (-2) \rightarrow 3(-2) - 5$

$\rightarrow -6 - 5$

$\rightarrow -11$

$f(x) = 3x - 5$ Rule

"f" of x is equal to $3x - 5$.

$f(-2) = 3(-2) - 5$ (Input (Domain))

$= -6 - 5$

$= -11$ (Output (range))

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In

5
-1

$4 - 5x + x^2$

(5, 4)
(-1, 10)

out

4
10

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5.1 #1 - #45 - m3

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5.2 Polynomials

* Term: is a single number (called a constant term) or the product of a number and one or more variables.

Examples: $-5, 10a^3, 15$
or $2x, -19ab, 4x^2y$

* Degree of a Term: the sum of all the variables exponents

$2x^1 \rightarrow$ Degree is 1

$-9x^2y \rightarrow$ Degree $2+1=3$

$123a^8b^4x^2y \rightarrow$ Degree is $8+4+2+1=17$

$5 \rightarrow$ Degree is 0

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$5x^0 = 5 \cdot 1 = 5$

$x^0 = 1$

$1 \cdot (5x^0)$

1

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Polynomial

① **Monomial**: one term
"one" 5 or $-2x^2$

② **Binomial**: two terms which are connected by a sum or difference
"two" $2x - 5$
 $x^2 + 8$

③ **Trinomial**: three terms connected by + or -
"three" $3x^2 - 5x + 2$

④ **Polynomial**: many terms connected
"many" $-4x^4 - 2x^5 + 5x^2 + 2$

5

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* The Degree of the Polynomial is determined by the largest degree of any one of its terms.

$x^2 + 2x - 5$ → Degree is 2
 $\begin{matrix} \boxed{x^2} & + & \boxed{2x} & - & \boxed{5} \\ \text{D: } 2 & & \text{D: } 1 & & \text{D: } 0 \end{matrix}$

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$-6x^4y^3 + 10x^6y^2 - 5y^{10} + x$

$\begin{matrix} \boxed{-6x^4y^3} & + & \boxed{10x^6y^2} & - & \boxed{5y^{10}} & + & \boxed{x} \\ \text{D: } 7 & & \text{D: } 8 & & \text{D: } 10 & & \text{D: } 1 \end{matrix}$

Degree: 10

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