

Trigonometry/PreCalculus Special Topics: Functions, Domain, Range

Relation Any set of ordered pairs.
 (1,0) (2,1) (3,2)
 (1,2) (2,3) (3,4)

Function A relation which has a relationship between two variables such that to each value of the independent variable there corresponds exactly one value of the dependent variable.
 (0,4) (1,3) (2,3)
 (3,5) (4,4) (5,5)

A relation in which different ordered pairs have different 1st coordinates

Function Notation: $y = f(x)$
 f is the name of the function
 y is the dependent variable; OUTPUT value
 x is the independent variable; INPUT value
 f(x) is the value of the function at x

Example: Given $f(x) = \sqrt{x+2} - 1$, find $f(7)$.
 $f(7) = \sqrt{7+2} - 1 = 2$

Vertical Line Test

Domain Set of all values (INPUTS) of the independent variable for which the function is defined.

RULES: radicals with even roots cannot have a negative number underneath
 fractions cannot have zero in the denominator

Range Set of all values (OUTPUTS) assumed by the dependent variable (set of all function values)

Interval Notation

$(-\infty, 4) \cup [2, \infty)$ $[-2, 2]$ $(-\infty, 0] \cup [6, \infty)$

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