

§ 2.2 Functions

Relation: a set of ordered pairs. example: $\{(4,5),(7,2),(8,11)\}$

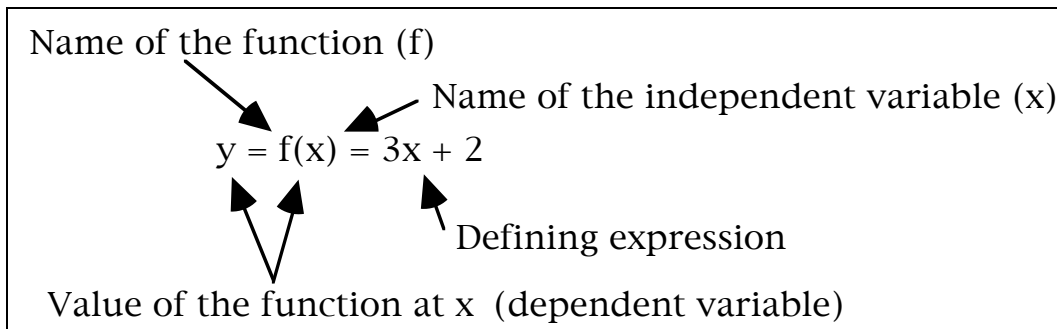
Domain: - the x-values.

Function: a relation in which each element (number) in the domain corresponds to exactly one element (number) in the range.
(Note: The elements in the Domain **CANNOT** repeat !)

Example: $\{(1,2),(3,4),(5,4)\}$ IS THIS A FUNCTION ?

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Function Notation: $f(x)$ is read "f of x " or "the function f evaluated at x".



Independent variable: x is called the independent variable because it determines $f(x)$, which is the y - coordinate.

Dependent variable: y is called the dependent variable because it is determined by x . (it depends on x)

Example: 1 Let $g(x) = 3\sqrt{x}$, $h(x) = 1 + 4x$, $k(x) = x^2 + 3$.

Find a) $g(16)$

b) $h(3)$

c) $k(b)$

Domain & Range: (of a function)

1) If the function is in the form $y = \frac{P(x)}{Q(x)}$, solve $Q(x) = 0$. (This gives the restrictions on the value(s) of the variable (x)).

2) If the function is in the form $y = \sqrt{P(x)}$, solve the inequality $P(x) \geq 0$.

Example 2: State the Domain for each of the following:

a) $k(x) = \frac{2}{x-5}$

b) $h(x) = x^2 + 4$

c) $g(x) = \sqrt{x-2}$