

Relations and Functions

Relations: A mapping from a set of real numbers to a set of real numbers.

i.e. $D \rightarrow R$. (At this stage, $D \subseteq \mathbb{R}$ and $R \subseteq \mathbb{R}$).

D is called the *Domain*, and R is called the *Range*.

When the relation is represented as $f(x, y) = 0$, then

$x \in D$, and is called the independent variable. Its values are *input values*.

$y \in R$, and is called the dependent variable. Its values are *output values*.

A function is a relation in which there is only one output for each input value in D .

A function is represented as $y = f(x)$.

Even function: $f(x) = f(-x)$ (Symmetrical around y-axis.)

Odd function: $f(x) = -f(-x)$ (Symmetrical around the origin.)

Locus: A set of points that satisfy a condition.

All points on the locus satisfy the condition,

and all points satisfying the condition are on the locus.