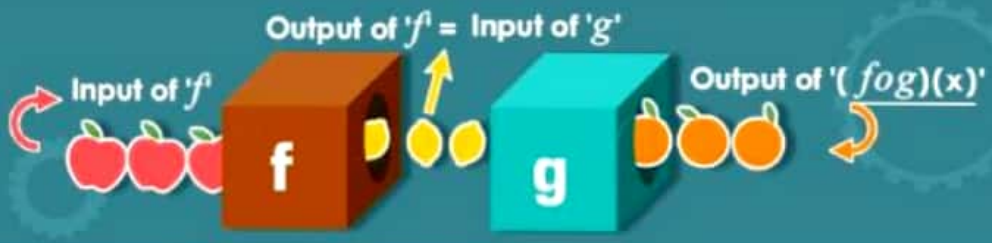
SPECIAL FUNCTIONS

COMPOSITE FUNCTION



"Function Composition" means applying one function to the results of another.

PROPERTIES OF COMPOSITE FUNCTIONS

- The composite of functions is not commutative. $(gof)(x) \neq (fog)(x)$
- The composite of functions is associative. if f, g, h are three functions Then $fo(goh) = (fog)oh$
- The composite of two bijections is a bijection. if f and g are two bijections such that gof is defined, then gof is also a bijection.

INVERSE FUNCTION

Let $f : A \rightarrow B$ be a bijective function, then there exists a unique $g : B \rightarrow A$ such that $f(x) = y \Leftrightarrow g(y) = x$, for all $x \in A$ and $y \in B$. Then 'g' is said to be inverse of 'f'.

PROPERTIES OF INVERSE FUNCTION

- The inverse of a bijection is unique.
- If $f : A \rightarrow B$ is a bijection and $g : B \rightarrow A$ is the inverse of f, then $fog = I_B$ and $gof = I_A$, where I_A and I_B are identity functions on the sets A and B respectively.
- The inverse of a bijection is also a bijection.
- If f & g are two bijections ; $f : A \rightarrow B$, $g : B \rightarrow C$ then the inverse of gof exists and $(gof)^{-1} = f^{-1}og^{-1}$.