

Security Functions II



We now understand the definition of functions.

If $f(x) = y$, where $x \in X$ and $y \in Y$ then y is called an image of x , and x is called the preimage of y .

Given $x_1, x_2 \in X$ and $y_1, y_2 \in Y$,

$$f(x_1) = y_1 \text{ and } f(x_2) = y_2$$

We call the function $f : X \rightarrow Y$ as $1 - 1$ (one-to-one) if:

$$f(x_1) = f(x_2) \implies x_1 = x_2$$

Let us define a particular one-to-one function as $f_2 : X \rightarrow X$, such that $f_2(x) = x^2$

where $X = \{1, 2, 3, 4, \dots\}$.

The function defined in the previous challenge is not one-to-one because:

$$f_1(0) = f_1(11) = 0, 0 \neq 11$$

Your task is to complete the function that takes x as the input and return x^2 .

Constraints

$$1 \leq x \leq 1000$$