

- Consider the function $f: \mathbb{R} \rightarrow \mathbb{Z}$ where

$$f(x) = n \iff x \in A_n.$$

This is sometimes called `floor(x)`. Note surjective but **not** injective!

- We also have

$$g: \mathbb{R} \rightarrow [0, 1),$$

where $g(x) = x - f(x)$. This is sometimes called the **fractional part** of x ,
or

$$g(x) = x \pmod{1}$$