Defining Functions

CTTI

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Why we have to check that a function is 'well-defined'?
Do each of the following define a function with the domain given.

1. Let $\sqrt{}^n$ have domain $\Re$. $\sqrt{}^n(x)$ is the nth root of x.

   $\mathbb{Q}$ denotes the set of equivalence classes under the equivalence relation on $\{\frac{m}{n} : m, n \in \mathbb{Z}, n \neq 0\}$ defined by 'reducible'.

2. Let sum have domain $\mathbb{Q}$ (more precisely $\mathbb{Q} \times \mathbb{Q}$). $\mathrm{sum}(\frac{a}{b}, \frac{c}{d})$ is defined to be $\frac{ad+bc}{cd}$.

3. Let size have domain $\mathbb{Q}$. $size(x)$ is the sum of the numerator and denominator of X.