

## 1.57: Image

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Let  $X$  and  $Y$  be sets,  $f$  be the function  $f : X \rightarrow Y$ , and  $x$  be some member of  $X$ . Then the **image** of  $x$  under  $f$ , denoted  $f(x)$ , is the unique member  $y$  of  $Y$  that  $f$  associates with  $x$ .

The **image** of a subset  $A \subseteq X$  under  $f$  is the subset of  $Y$  defined by  $f[A] = \{y \in Y \mid y = f(x) \text{ for some } x \in A\}$ .

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