

FIGURE 3.1 A Venn-Euler diagram.

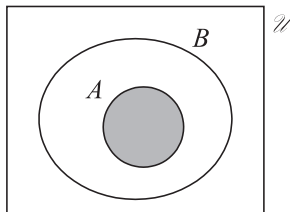


FIGURE 3.2 Venn-Euler diagrams representing subset.

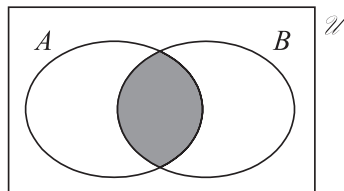


FIGURE 3.3 Venn-Euler diagram showing $A \cap B$.

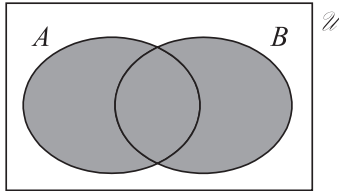


FIGURE 3.4 Venn-Euler diagram showing $A \cup B$.

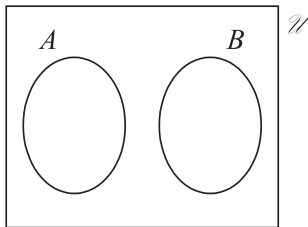


FIGURE 3.5 Venn-Euler diagram representing disjoint sets.

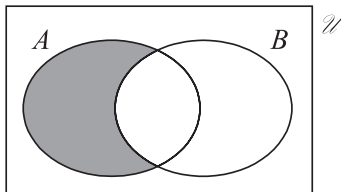


FIGURE 3.6 Venn-Euler diagram representing $A - B$.

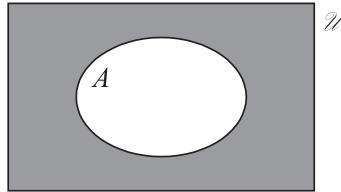


FIGURE 3.7 Venn-Euler diagram representing \overline{A} .

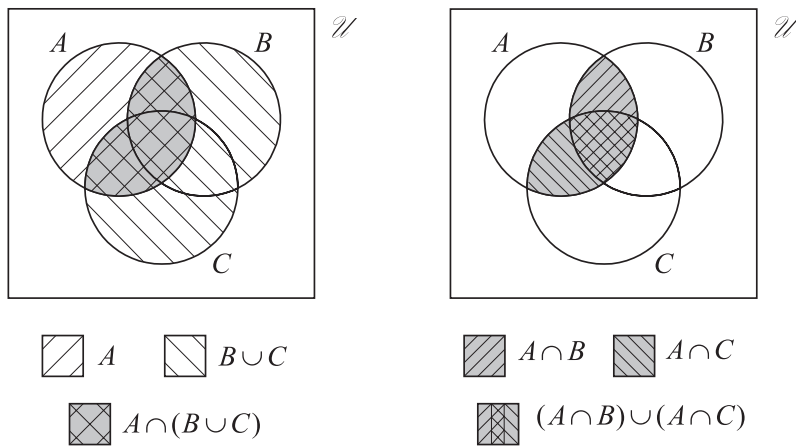


FIGURE 3.8 Illustrating $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.

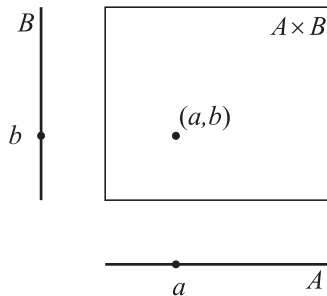


FIGURE 3.9 Diagram representing the Cartesian product $A \times B$.

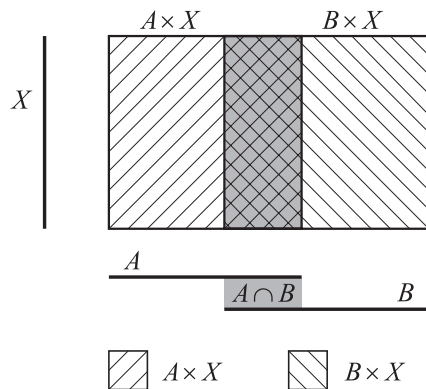


FIGURE 3.10 Diagram representing the interaction between Cartesian product and intersection.

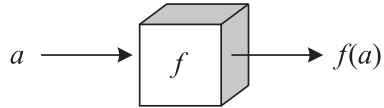


FIGURE 3.11 A function machine.

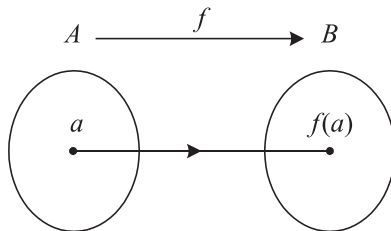


FIGURE 3.12 Diagram of a function showing the sets involved.

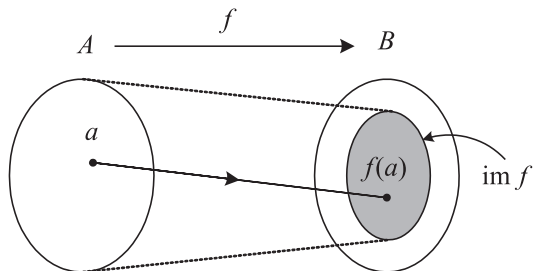


FIGURE 3.13 Diagram showing the image of a function.

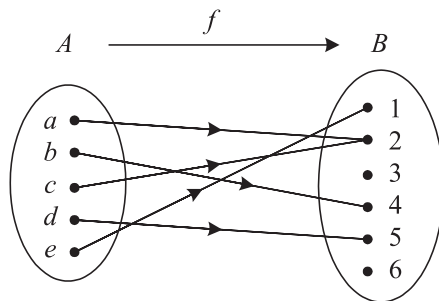


FIGURE 3.14 Illustrating the function in example 3.11.1.

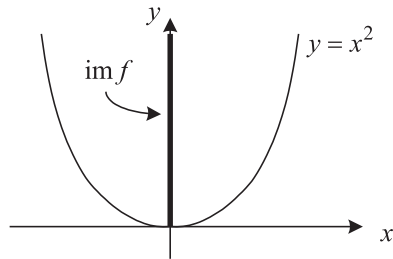


FIGURE 3.15 The image of the square function $\mathbb{R} \rightarrow \mathbb{R}, x \mapsto x^2$.

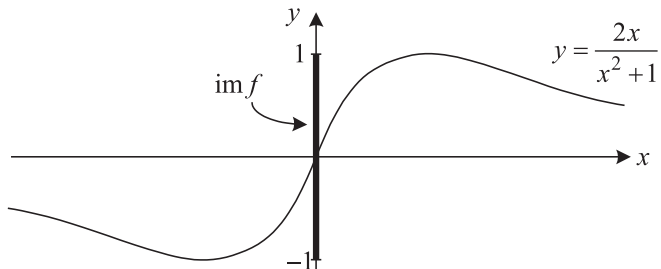


FIGURE 3.16 The image of the function $g: \mathbb{R} \rightarrow \mathbb{R}, g(x) = \frac{2x}{x^2+1}$.

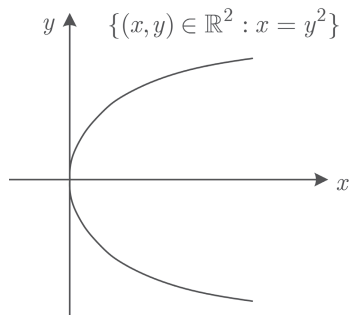


FIGURE 3.17 Attempting to define the square root function.

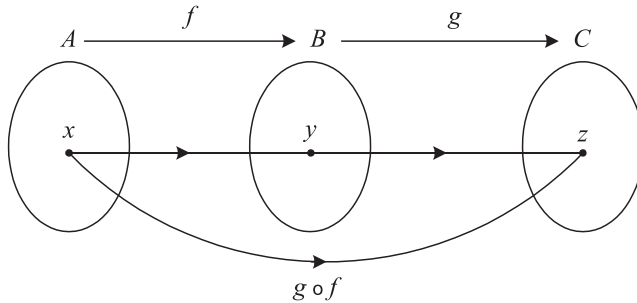


FIGURE 3.18 Illustrating the composite function.

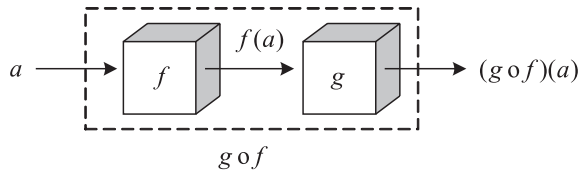


FIGURE 3.19 Composite of function machines.

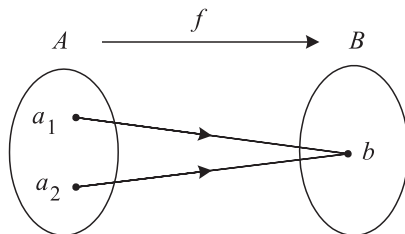


FIGURE 3.20 Different elements of the domain with the same image.

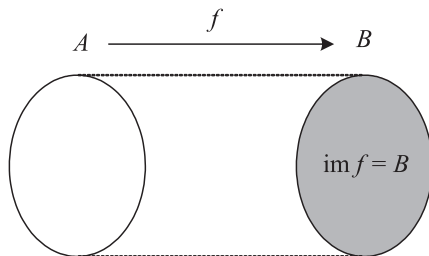


FIGURE 3.21 A surjective function.

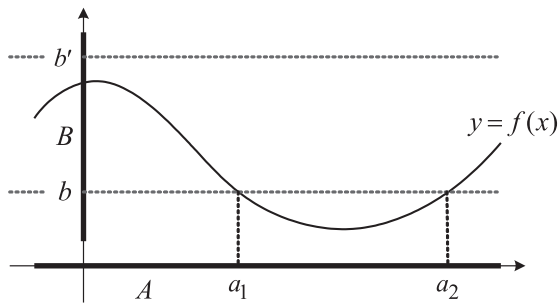


FIGURE 3.22 Horizontal line test for functions $\mathbb{R} \rightarrow \mathbb{R}$.

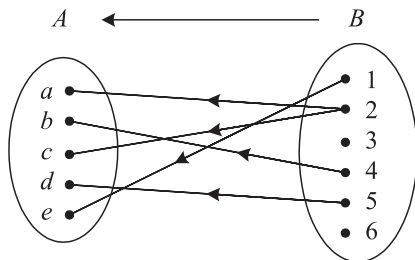


FIGURE 3.23 Reversing the arrows in example 3.11.1.

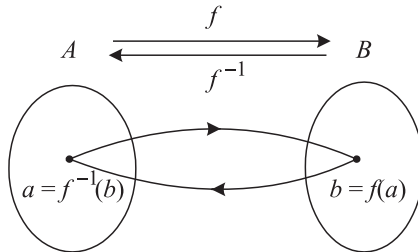


FIGURE 3.24 Defining the inverse function.

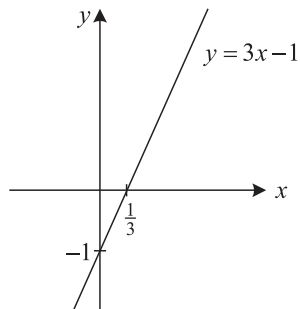


FIGURE 3.25 The graph of $f : \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = 3x - 1$.

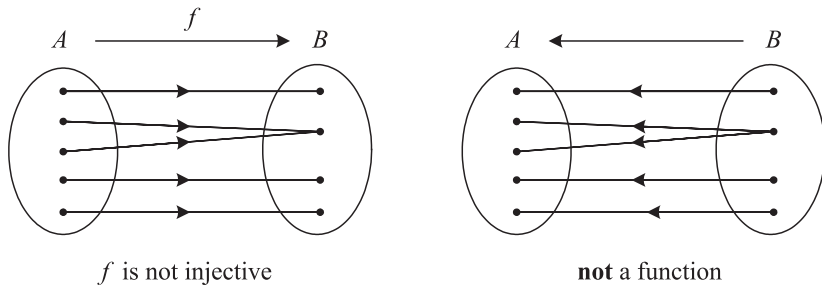


FIGURE 3.26 Reversing arrows when the function is not injective.

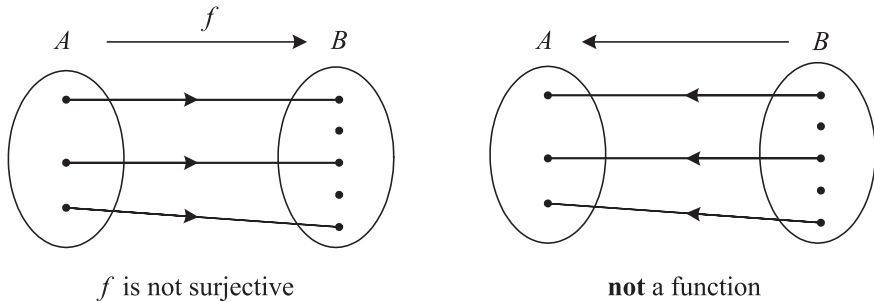


FIGURE 3.27 Reversing arrows when the function is not surjective.

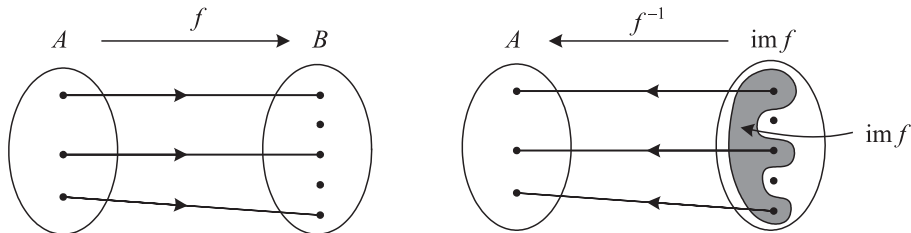


FIGURE 3.28 Defining an inverse when the function is not surjective.