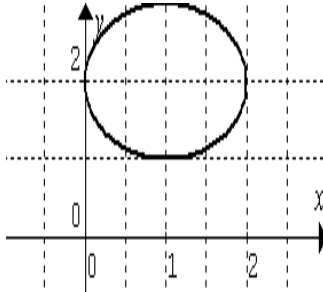


Domain

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The **domain** is the allowed values for the input variable.

The domain is “all real x ”, which can also be written $x \in \mathbb{R}$, except in the following cases:

Cases	Examples	Domain of examples
1. The domain is specified	$f: \{(2, 3), (4, 5), (6, 7)\}$ $y = x^2, x \geq 0$	$x = 2, 4, 6$ $x \geq 0$
2. A graph: To find the domain, read it off the graph.		all real $x \mid 0 \leq x \leq 2$
3. Division by zero (To find the domain, set the denominator $\neq 0$.)	$\frac{3}{x-2}$ $\frac{1}{x^2-4}$	$x - 2 \neq 0$, which gives all real $x \neq 2$ $x^2 - 4 \neq 0$, which gives all real $x \neq \pm 2$
4. square roots of negative numbers (To find the domain Set the argument (i.e. the stuff inside the root) ≥ 0).	$\sqrt{x-1}$ $\sqrt{x^2-9}$ $\sqrt[3]{x}$	$x - 1 \geq 0$, which gives all real $x \geq 1$ $x^2 - 9 \geq 0$, which gives all real $x \mid x \leq -3$ or $x \geq 3$ all real x (Because rule doesn't apply to odd roots.)