FUNCTION AS ONE OF THE FUNDAMENTAL CONCEPTS AT SECONDARY SCHOOL MATHEMATICS

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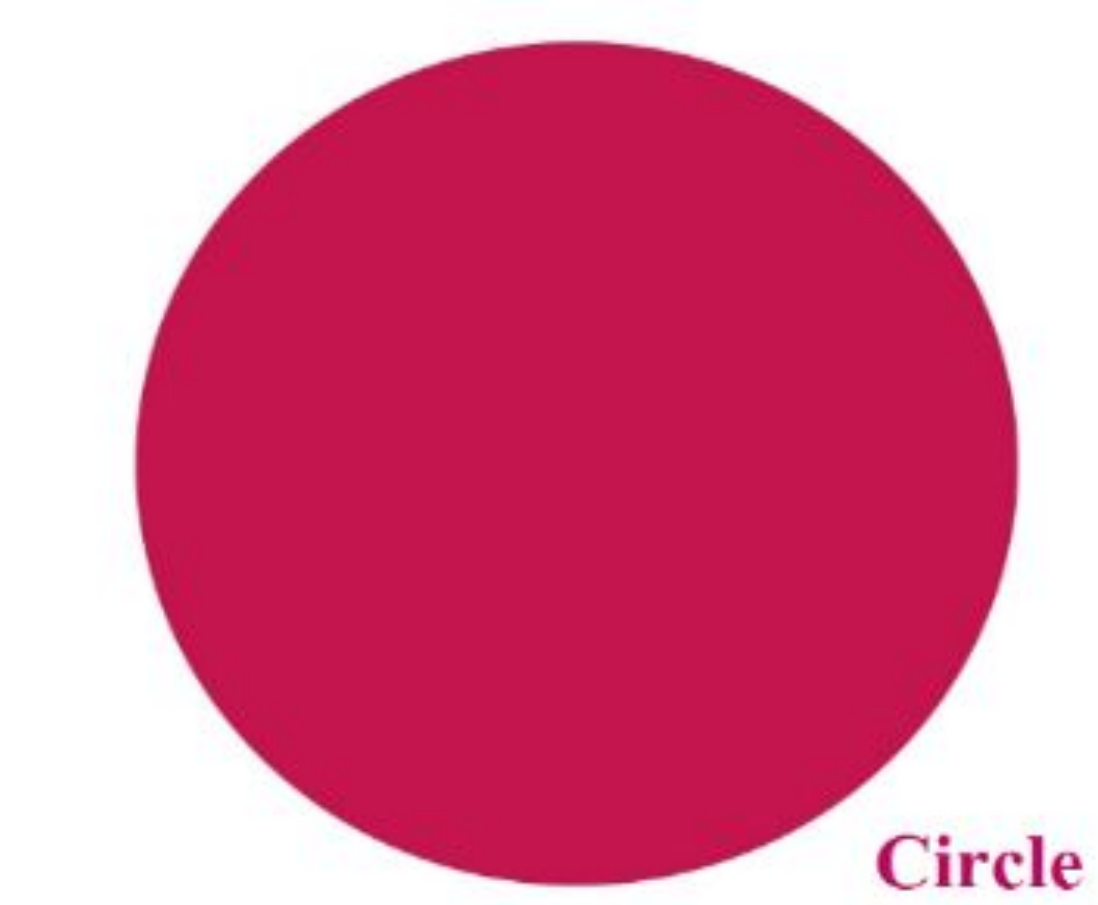
Interesting Facts



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Purpose

- **to investigate the role and place of function at secondary school mathematics**

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Tasks

- the concept of function
- function types
- pedagogical recommendations for the study of functions in school mathematics course

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Problem

V.S. Vladimirov (1923-2012)

L.S. Pontryagin (1908-1988)

A. N. Tikhonov (1947-2016)

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Reasons

- **the absence of interest among schoolchildren to the subject and the study of functions in particular**
- **the study of every new type of function, the properties of the function, in fact, without connection with the previous one**
- **the gap between the computational and functional-graphic skills of students**

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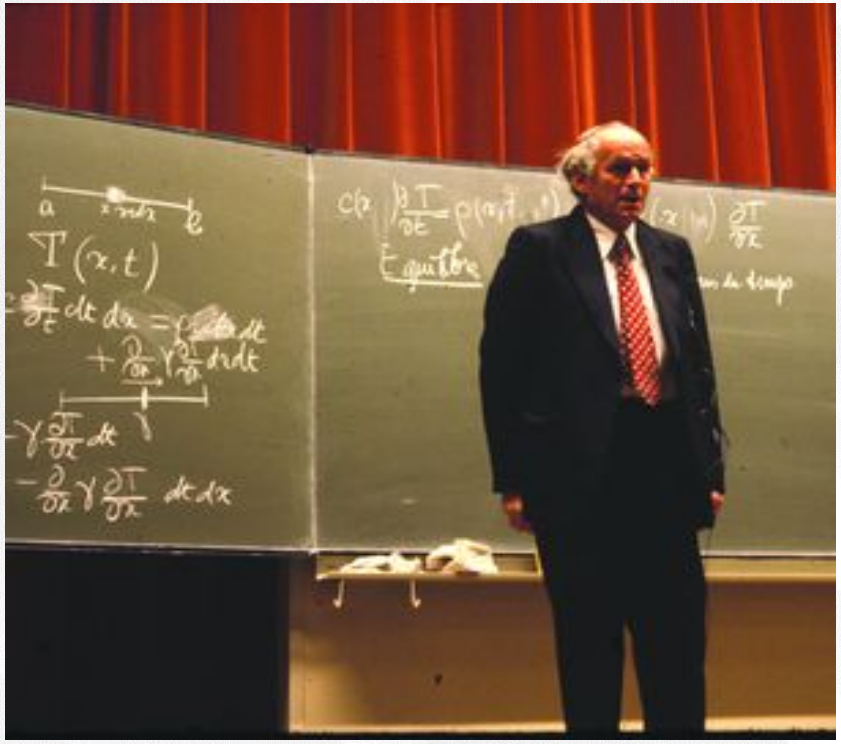
Definition of Function

Gottfried Wilhelm Leibniz
(1646-1716)



Laurent-Moise Schwartz
(1915-2002)

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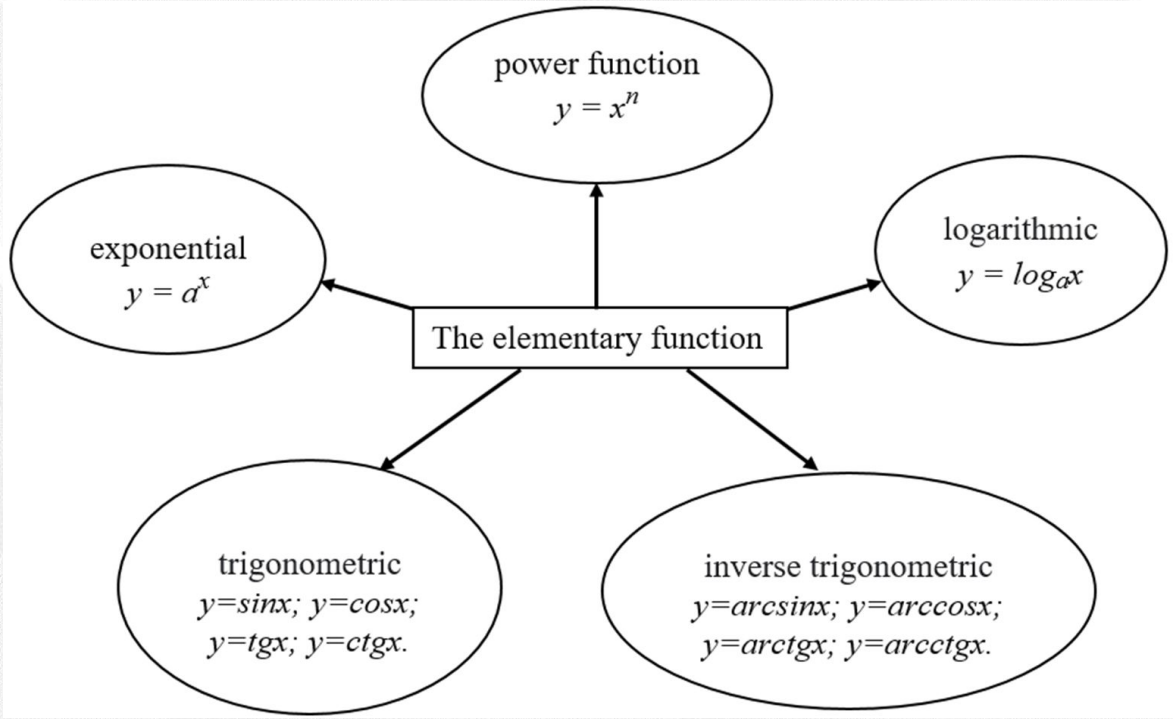
Function Types

- **elementary:** $y = f(x)$
- **non-elementary:** $y(x) = \begin{cases} 0, if\ x - irrational\ number, \\ 1, if\ x - rational\ number \end{cases}$



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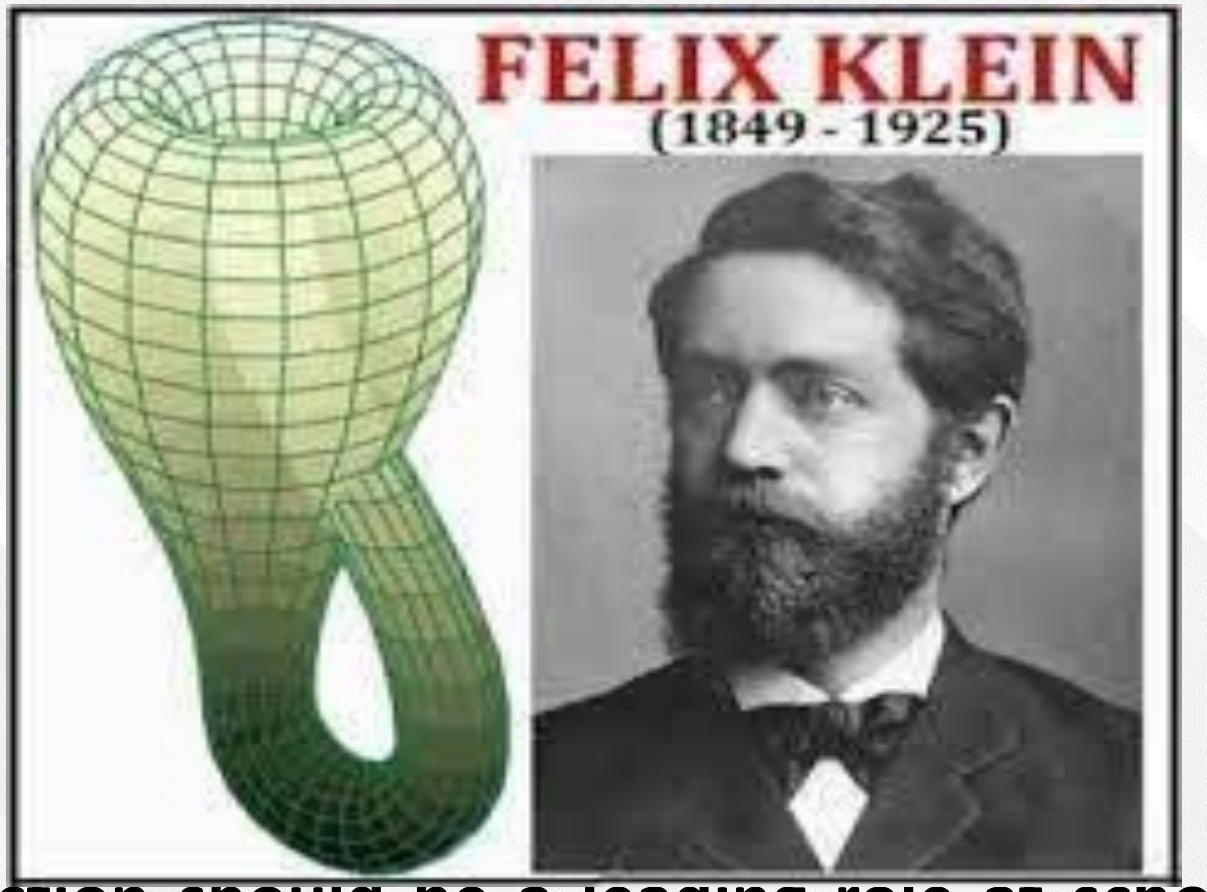
The Pedagogical Recommendation



- **Concept of function should be a leading role at school mathematics course**

The definition of Function

Merzlyak A.G. Algebra. 7 grade	Mordkovich A.G. Algebra. 9 grade
•The rule by which, for each value of the independent variable, one can find the only value of the dependent variable is called a function, and the corresponding dependence of one variable on another is called a functional. Denoted as $y=f(x)$.	•If a numerical set X and a rule f are given that allow each element x from the set X to be associated with a certain number y, then we say that a function $y=f(x)$ with domain X is given; write $y=f(x)$, $x \in X$.

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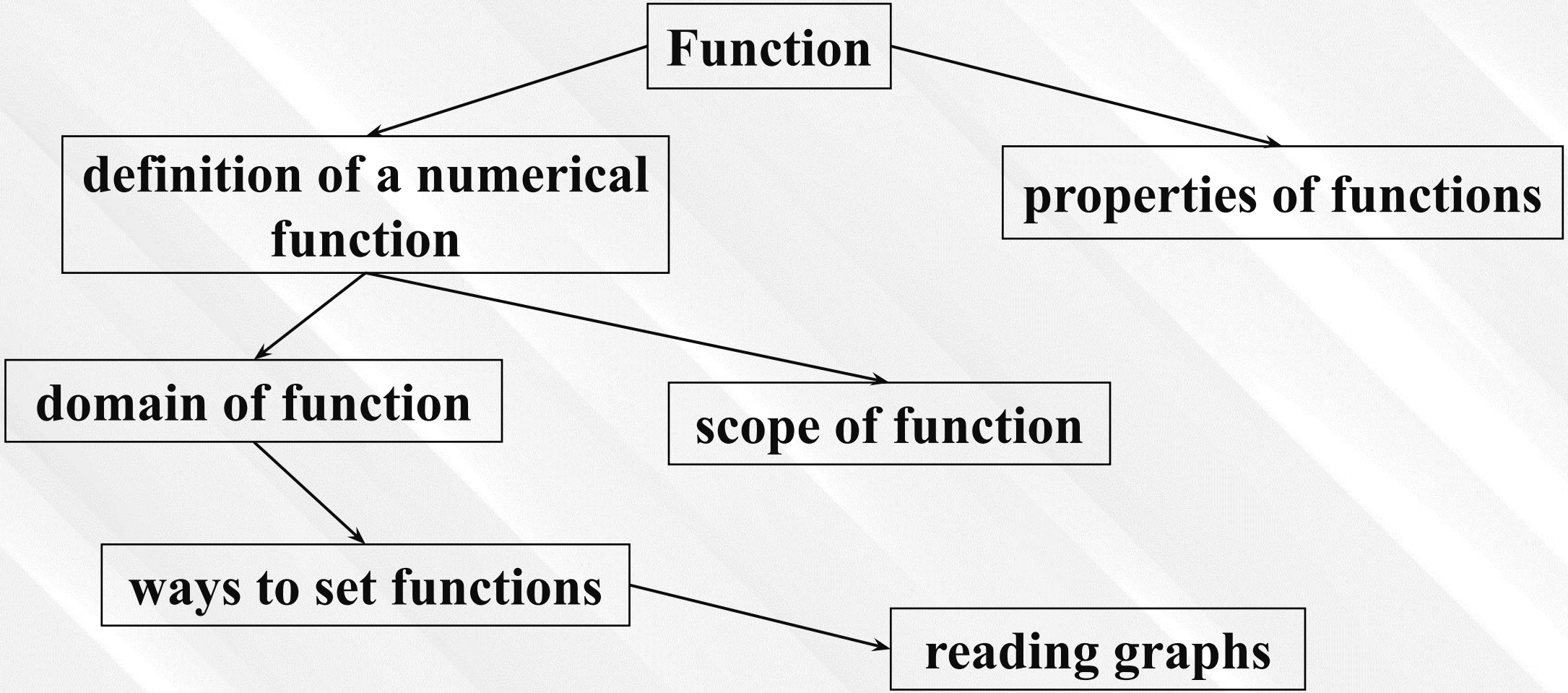
The Concept of Function



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Conclusion

- **the main task of the teacher is to form the concept of function in each student's mind**

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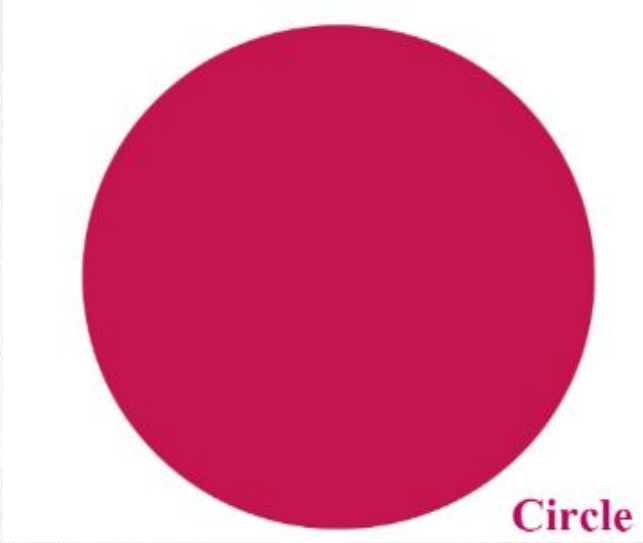
Interesting Facts



- **The answer: for figures with the same perimeters, the area will be larger for the figure with the smallest angle. Perimeter is the sum of the lengths of all sides of a figure**

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