

Visual Mathematics in Practice



Name of the teacher:	SUDAREVIĆ IRENA
Name and address of the school:	Tehnička škola "Ivan Sarić" 24000 Subotica
Theme of the lesson:	The definite integral.
Place in curriculum: (type of school, grade)	Secondary school
Age of the students/pupils:	4-nd class (18 years old)
Title of the lesson:	The concept and definition of definite integral.

Description of the lesson			
Time	Exercises, matters, parts of the lesson	Methods and forms of student activities	Developable competencies
5 min.	<p>Introduction: Consider the curve $y=f(x)>0$ between $x=a$ and $x=b$. We ask :What is the area under the function f, in the interval $[a,b]$? This is a concept of definite integral.</p>		
35 min.	<p>Central part: How can we make approximation of this area? Using Geogebra file , we define the Riemann sum of a function f:</p> $\sum_{i=1}^n f(t_i)\Delta_i.$ <p>We define the Upper sums , and the Lower sums of the function. If we increase the value of n , the approximation of the area will be better. And when $n \rightarrow \infty$, the Riemann sums converging.</p>	<p>Using Integral.ggb file, we can change the value of n , and we can get the Upper sums and the Lower sums, and the difference between them.</p>	<p>Counting, abstract thinking, logical conclusion.</p>

5 min.	<p>The definite integral $\int_a^b f(x)dx$ is defined informally to be the signed area of the region in the xy-plane, bounded by the graph of f, the x - axis, and the vertical lines $x=a$, and $x=b$. Area above x - axis adds to the total, and area below the x - axis subtracts from the total sum.</p> <p>(Inspiration came from Djurdjica Takači .)</p> <p>The final part: the question of students.</p>	<p><i>Using Integral.ggb Geogebra file, we can change the function f, and in this way we can present many example of this problem.</i></p>	
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Summary	
<i>The lesson was interesting and successful.</i>	

Supplements	
Used materials:	<i>Integral.ggb file (Some words in this file is on hungarian)</i>
Photos:	<i>no</i>