

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$

It is well known that this function is the arctangent function, i.e. $f(x) = \arctan x$. The first part of the paper is devoted to the study of the properties of this function.

2. The second part of the paper is devoted to the study of the properties of the function $g(x)$ defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^2} dt + \int_0^x \frac{1}{1+t^4} dt$$

It is well known that this function is the sum of the arctangent function and the function $\int_0^x \frac{1}{1+t^4} dt$. The second part of the paper is devoted to the study of the properties of this function.

The third part of the paper is devoted to the study of the properties of the function $h(x)$ defined by the equation

$$h(x) = \int_0^x \frac{1}{1+t^2} dt + \int_0^x \frac{1}{1+t^4} dt + \int_0^x \frac{1}{1+t^6} dt$$

It is well known that this function is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$ and $\int_0^x \frac{1}{1+t^6} dt$. The third part of the paper is devoted to the study of the properties of this function.

3. The fourth part of the paper is devoted to the study of the properties of the function $k(x)$ defined by the equation

$$k(x) = \int_0^x \frac{1}{1+t^2} dt + \int_0^x \frac{1}{1+t^4} dt + \int_0^x \frac{1}{1+t^6} dt + \int_0^x \frac{1}{1+t^8} dt$$

It is well known that this function is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$ and $\int_0^x \frac{1}{1+t^8} dt$. The fourth part of the paper is devoted to the study of the properties of this function.

The fifth part of the paper is devoted to the study of the properties of the function $l(x)$ defined by the equation

$$l(x) = \int_0^x \frac{1}{1+t^2} dt + \int_0^x \frac{1}{1+t^4} dt + \int_0^x \frac{1}{1+t^6} dt + \int_0^x \frac{1}{1+t^8} dt + \int_0^x \frac{1}{1+t^{10}} dt$$

It is well known that this function is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$, $\int_0^x \frac{1}{1+t^8} dt$ and $\int_0^x \frac{1}{1+t^{10}} dt$. The fifth part of the paper is devoted to the study of the properties of this function.

The sixth part of the paper is devoted to the study of the properties of the function $m(x)$ defined by the equation

$$m(x) = \int_0^x \frac{1}{1+t^2} dt + \int_0^x \frac{1}{1+t^4} dt + \int_0^x \frac{1}{1+t^6} dt + \int_0^x \frac{1}{1+t^8} dt + \int_0^x \frac{1}{1+t^{10}} dt + \int_0^x \frac{1}{1+t^{12}} dt$$

It is well known that this function is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$, $\int_0^x \frac{1}{1+t^8} dt$, $\int_0^x \frac{1}{1+t^{10}} dt$ and $\int_0^x \frac{1}{1+t^{12}} dt$. The sixth part of the paper is devoted to the study of the properties of this function.



The function $f(x)$ is the arctangent function, i.e. $f(x) = \arctan x$. The function $g(x)$ is the sum of the arctangent function and the function $\int_0^x \frac{1}{1+t^4} dt$. The function $h(x)$ is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$ and $\int_0^x \frac{1}{1+t^6} dt$. The function $k(x)$ is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$ and $\int_0^x \frac{1}{1+t^8} dt$. The function $l(x)$ is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$, $\int_0^x \frac{1}{1+t^8} dt$ and $\int_0^x \frac{1}{1+t^{10}} dt$. The function $m(x)$ is the sum of the arctangent function and the functions $\int_0^x \frac{1}{1+t^4} dt$, $\int_0^x \frac{1}{1+t^6} dt$, $\int_0^x \frac{1}{1+t^8} dt$, $\int_0^x \frac{1}{1+t^{10}} dt$ and $\int_0^x \frac{1}{1+t^{12}} dt$.