**arcth**

*Function of calculating arc hyperbolic tangent of real or complex number.*

**Syntax:**

*y* **= arcth***(x);*

**Arguments:**

*x* – input value.

**Description:**

*arcth(x)* – function of calculating arc hyperbolic tangent (inverse hyperbolic tangent) of real or complex number:

The input value can be both real and complex number.

The input real value is restricted by condition: -1<*x*<1.

The input value can be assigned either as a preliminarily determined variable, or as a constant number.

A complex number shall be assigned by the expression *a*+*b*i, where *a* and *b* are real and virtual number parts, accordingly.

**Result:**

*y* – arc hyperbolic tangent of input value *x*.

**Example 1:**

*Arc hyperbolic* *tangent* *of real number*

|  |  |
| --- | --- |
|  | **const** x = -0.5;  y = **arcth**(x); |

As a result, variable *y* will be assigned a value -0.54930614.

**Example 2:**

*Arc hyperbolic* *tangent* *of complex number*

|  |  |
| --- | --- |
|  | y = **arcth**(3+4i); |

As a result, variable *y* will be assigned a value 0.11750091+1.409921i.