Ïðîãðàììèðîâàíèå ëèíåéíûõ âû÷èñëèòåëüíûõ ïðîöåññîâ

Äàíî âûðàæåíèå $\left(2^{-x}\cdot\operatorname{atan}(x+a)-3^{-x\cdot b}\right)\cdot\cos(x+b)$

Äëÿ ñëåäóþùèõ çíà÷åíèé $a := -0.5$

$b := 1.2$

x - ëþáîå äîïóñòèìîå ÷èñëî

$$f(x) := \left|\begin{array}{l} a \leftarrow 0.5 \\ b \leftarrow 1.2 \\ \left(2^{-x}\cdot\operatorname{atan}(x+a)-3^{-x\cdot b}\right)\cdot\cos(x+b) \end{array}\right.$$

$f(5) = 0.042$

$f(0.6) = -0.022$

Ïðîãðàììèðîâàíèå ðàçâåòâëÿþùèõñÿ âû÷èñëèòåëüíûõ ïðîöåññîâ

$a = 9876.5$

$b = 34.58$

x - ëþáîå äîïóñòèìîå ÷èñëî

$$y(x) := \begin{cases} a \leftarrow 9876.5 \\ b \leftarrow 34.58 \\ e^{\sin(x)} + b \cdot \sqrt{\left|2 \cdot \cos(6 \cdot x - 0.3)\right|} & \text{if } b^2 > a \cdot x \\ e^{-x} + \sqrt{\tan\left(\left|3 \cdot x + 0.6\right|\right)} & \text{if } \left(b^2 \le a \cdot x\right) \end{cases}$$

$y(-7.5) = 24.863$

$y(0.3) = 4.496$

$y(-8.45) = 42.567$

$y(0.659) = 0.517 + 0.796i$

$y(-\log(\sqrt{3})) = 20.344$

Âòîðîé âàðèàíò

$a = 9876.5$

$b = 34.58$

x - ëþáîå äîïóñòèìîå ÷èñëî

$$y(x) := \begin{cases} a \leftarrow 9876.5 \\ b \leftarrow 34.58 \\ e^{\sin(x)} + b \cdot \sqrt{|2 \cdot \cos(6 \cdot x - 0.3)|} & \text{if } b^2 > a \cdot x \\ e^{-x} + \sqrt{\tan(|3 \cdot x + 0.6|)} & \text{otherwise} \end{cases}$$

$y(-7.5) = 24.863$

$y(0.3) = 4.496$

$y(-8.45) = 42.567$

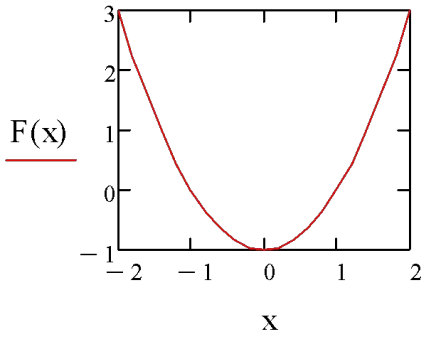
$y(0.659) = 0.517 + 0.796i$

$y(-\log(\sqrt{3})) = 20.344$

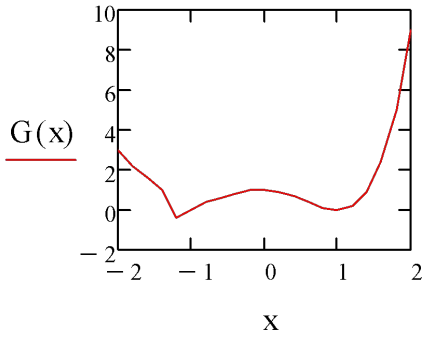
Òðåòèé âàðèàíò

$x := -2, -1.8 .. 2$

$F(x) := x^2 - 1$



$$G(x) := \begin{cases} F(x) & \text{if } -2 \le x < -1.3 \\ -F(x) & \text{if } -1.3 \le x < 0 \\ F(x)^2 & \text{if } 0 \le x \le 2 \\ x & \text{otherwise} \end{cases}$$



$G(-1.4) = 0.96$

$G(1) = 0$

$G(0) = 1$

Âû÷èñëèòü çíà÷åíèå ó(õ) èñïîëüçóÿ Áóëåâà àëãåáðó ðàâíîå $x^2 + 2$ åñëè $x \geq 0$ è $x < 2$

$\sin(x + 1)$ åñëè $x \geq 0$ è $x < 5$

èíà÷å 0

$$y(x) := \begin{cases} x^2 + 2 & \text{if } (x \geq 0) \wedge (x < 2) \\ \sin(x + 1) & \text{if } (x \geq 2) \wedge (x < 5) \\ 0 & \text{otherwise} \end{cases}$$

$y(6) = 0$

$y(1) = 3$

$y(-4) = 0$

$y(3) = -0.757$

Ïðîãðàììèðîâàíèå öèêëè÷åñêèõ âû÷èñëèòåëüíûõ ïðîöåññîâ

Äàíà ôóíêöèÿ $x + \sin(x) - \cos((x \cdot y))$

Äàíû çíà÷åíèÿ $y = 0.5$

$x = 0 .. 7$

$d = 0.2$

$$\text{from\_tab}(x1, x2, d) := \left| \begin{array}{l} i \leftarrow 1 \\ y \leftarrow 0.5 \\ \text{for } x \in x1, x1 + d .. x2 \\ \quad \left| \begin{array}{l} z \leftarrow x + \sin(x) - \cos(x \cdot y) \\ s_i \leftarrow z \\ i \leftarrow i + 1 \end{array} \right. \\ s \end{array} \right.$$

$J := \text{from\_tab}(0, 4, 0.2)$

$J^T =$

	0	1	2	3	4	5	6	7	8	9
0	0	-0.596	0.19	1.209	2.596	3.961	4.307	7.621	...	

```
from(x1, x2, d) := | i ← 1
                   | y ← 0.5
                   | for x ∈ x1, x1 + d .. x2
                   |     | z ← x + sin(x) − cos(x·y)
                   |     | s_i ← z
                   |     | i ← i + 1
                   | s
```

Ïðîãðàììèðîâàíèå ñëîæíûõ öèêëè÷åñêèõ âû÷èñëèòåëüíûõ ïðîöåññîâ (öèêë â öèêëå)

$$
z := \left|
\begin{array}{l}
a \leftarrow 0.75 \\
i \leftarrow 0 \\
j \leftarrow 0 \\
\text{for } x \in -1, 0.8 .. 1 \\
\quad \left|
\begin{array}{l}
\text{for } y \in 1, 1.75 .. 5 \\
\quad \left|
\begin{array}{l}
z \leftarrow a \cdot e^{-x} \cdot \sin(a \cdot x) + \sqrt{a \cdot y} \\
t_{i,j} \leftarrow z \\
i \leftarrow i + 1
\end{array}
\right. \\
j \leftarrow j + 1 \\
i \leftarrow 0
\end{array}
\right. \\
t
\end{array}
\right.
$$

$$
z = \begin{pmatrix}
-0.524 & 1.056 \\
-0.244 & 1.336 \\
-0.02 & 1.56 \\
0.172 & 1.752 \\
0.342 & 1.922 \\
0.498 & 2.078
\end{pmatrix}
$$