MBA

Лабораторная работа №1. Линейные алгоритмы

Написать программу для вычисления арифметического выражения.

Содержание отчета:
1. Задание
2. Блок-схема
3. Текст программы
4. Ручной расчет контрольного примера
5. Машинный расчет контрольного примера

№	Арифметическое выражение	Контрольный пример
1	$\dfrac{\sqrt[7]{\cos(2c-b)+\lvert a\rvert}}{2\lvert a+c\rvert}+b\sqrt{\dfrac{2(b^2-ac)}{1+\ln\lvert c-1\rvert}}+6c+1$	a = -3 b = 4 c = 2
2	$\dfrac{\cos(a+2c)}{0{,}5\lvert c\rvert}+\sqrt{a-c}\cdot tg\dfrac{b}{3a}+\lvert \log_2 a-\sqrt[3]{4a}\rvert$	a = 2 b = π c = -1
3	$\dfrac{3\log_a 8}{\sin\dfrac{b}{3a}}-\sqrt[3]{5a^2+7}+\dfrac{4\lvert c-2a+1\rvert}{\sqrt{8a}}$	a = 2 b = π c = 0
4	$\dfrac{2\cos\left(a-\dfrac{\pi}{6}\right)}{0{,}5+\sin^2 b}\left(1+\dfrac{c^2}{2-\dfrac{c^2}{5}}\right)$	a = π/6 b = π c = 1
5	$\dfrac{1+\sin^2(a+b)}{\left\lvert a-\dfrac{2b}{1+a^2b^2}\right\rvert}\cdot a^{\lvert b\rvert}+\cos^2(arctg\dfrac{1}{c})$	a = 1 b = -1 c = 1
6	$\ln\left(b^{-\sqrt{\lvert a\rvert}}\right)\left(a-\dfrac{b}{2}\right)+\sin^2 arctg(c)$	a = 4 b = 10 c = 0
7	$\dfrac{\sin(ab^2-c)}{0{,}25(2c)^2 b}-\left\lvert\sqrt[3]{b^2+\ln c}-\cos 5b\right\rvert+10^4 b^5 c$	a = 10 b = 1 c = 1
8	$\left\lvert a^{\frac{b}{a}}-\sqrt[3]{\dfrac{b}{a}}\right\rvert+(b-a)\dfrac{\cos b-\dfrac{c}{b-a}}{1+(b-a)^2}$	a = 1 b = 8 c = 7

9	$b^{\sqrt{\lvert a\rvert}}+\cos^3(b)\dfrac{\lvert a-b\rvert\left(1+\dfrac{\sin^2 c}{\sqrt{a+b}}\right)}{e^{\lvert a-b\rvert}+\dfrac{a}{2}}$	a = 4 b = 0 c = π/2
10	$\dfrac{\sqrt[4]{b+\sqrt[3]{a-1}}}{\lvert a-b\rvert(\sin^2 c+\mathrm{tg}\, c)}$	a = 8 b = 14 c = π/4
11	$\dfrac{a^{b+1}+e^{b-1}}{1+a\lvert b-tgc\rvert}\cdot(1+\lvert b-a\rvert)+\dfrac{\lvert b-a\rvert^2}{2}-\dfrac{\lvert b-a\rvert^3}{3}$	a = 3 b = 1 c = 0
12	$10^{-3}\mathrm{tg}(-8)-\dfrac{(a-c)(a^2+b^2)}{\sqrt[3]{a^2+b^2+2{,}2c}}-\dfrac{\cos 2a}{\sin 5}$	a = 0 b = 1 c = 4
13	$\dfrac{\sqrt[2]{\lvert c-2{,}5\rvert+(a+c)^2}}{\sin 10}+10^{-3}e^{5b}-\dfrac{\lvert c-2{,}5\rvert+a^2}{\sqrt[3]{(a+c)^2}}$	a = 1 b = 0 c = 5
14	$\dfrac{\ln 5}{\sin c}-\sqrt{\lvert -2{,}5-a^2\rvert}-\dfrac{10^3 a-b}{\cos b}+\sqrt[3]{\lvert -5-a^2\rvert}-2{,}5c$	a = 0 b = 1 c = π/2
15	$10^4\dfrac{ac}{b^2}-\left\lvert\dfrac{a-b}{-2c}\right\rvert+\dfrac{\ln 3}{\sqrt[3]{-2a+b^2}}-e^{2c}$	a = 0 b = 1 c = 2
16	$\sqrt{\dfrac{abc}{2{,}4}}-\dfrac{0{,}7abc}{\sin b}+\sqrt[5]{\lvert\cos b\rvert}-\dfrac{\lvert b-a\rvert}{7{,}5}$	a = 1 b = π/2 c = 2
17	$\dfrac{\lvert a^2-b^2\rvert}{\sin b}-10^4\cdot\sqrt[5]{\lvert\sin(a+b)-bc\rvert}-\dfrac{4-tga}{e^3}$	a = 0 b = π/2 c = 1
18	$\dfrac{\sqrt[3]{\ln b+a^2}}{0{,}47b^2}-\left\lvert 0{,}47b^2-\dfrac{10^4}{7}\cos^2\lvert a\rvert\right\rvert-\dfrac{c}{b}$	a = 1 b = 1 c = 10
19	$\dfrac{1{,}5(a-b)^2}{\lvert a-b\rvert c}+10^3\cdot\sqrt{\lvert a-b\rvert}-\dfrac{2{,}5(a^2+2{,}75)\sin(-2a)}{3+a^2bc}$	a = 0 b = 4 c = 1
20	$10^4\sin^2(2{,}5c)-\dfrac{0{,}32c^3+4c+b}{\cos(2a)}\cdot\sqrt[6]{0{,}32c^3-b+\lvert b\rvert}$	a = 0 b = 0,1 c = 1
21	$\dfrac{ac^2+\lvert b\rvert}{(a+b)^2}-10^4\cdot\sqrt[5]{\dfrac{3c}{(a+b)^2}}-\dfrac{\cos\left(\dfrac{a}{2}\right)}{\sin(3c)}$	a = 0 b = 4 c = 1

22	$\cos\left(\frac{c}{2}\right)\cdot(c-a)+\frac{\sqrt[5]{\lvert c+a\rvert}}{2{,}4b}e^{3}+10^{-4}\cdot\frac{(c+a)^{3}+0{,}95c^{4}}{4(c-a)^{3}}$	a = -4 b = 2 c = 0
23	$\sqrt[5]{\lvert ac^{2}-b^{3}\rvert}+\ln 3c-\frac{e^{3c}+c^{2}}{\sin 2c}-10^{-3}\sqrt{2157a}$	a = 1 b = π/4 c = 1
24	$\frac{1}{9}+\sqrt{\frac{a^{2}+b}{0{,}4a}}-10^{4}e^{ac}+\cos\sqrt{a^{2}+b}+\frac{\sin 3}{5(a^{2}+b)}$	a = 1 b = 0 c = 1
25	$5\mathrm{arctg}(a)-\frac{1}{4}\cos(a)\frac{a+3\lvert a-b\rvert+a^{2}}{\lvert a-b\rvert c+a^{2}}$	a = 0 b = 6 c = 2
26	$\sqrt[3]{7+\lg(2b+c^{2})}+\frac{\log_{2}(a+b)+\sqrt{b^{3}+4c+1}}{\lvert a-2b-\cos(a-1)\rvert-2}$	a = 1 b = 3 c = 2
27	$\frac{8\sin\frac{b}{ac}+\cos b}{1+\log_{c}(a+1)}+\frac{a+c^{2}+1}{\sqrt{4(a+1)}}+5\lg(3a+1)$	a = 3 b = π c = 2
28	$8\lg(b+c)+\frac{2\cos^{2}a+c\sqrt{b+\log_{2}(c-1)}}{1+\sqrt{c}\cdot tg\frac{a}{b-1}}$	a = π b = 7 c = 3