**ЛБ – 07 – Составление программ с использованием процедур и функций**

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| Задание 1 | Задание 3 |
| **program** lb07\_zad1;  **var**  x, y: real;  **function** p(x, n:real): real;  **begin**  p:= exp(n \* ln(x))  **end**;  **procedure** pr(x:real; **var** y: real);  **begin**  y:= p(x, 6) \* p(x - 5, 3) / p(2 \* x + 1, 5)  **end**;  **begin**  pr(10, y);  writeln('y = ', y:8:4)  **end**.  Ответ: 30,6065 | **program** lab07\_zad3;  **var**  x, y: real;  **function** p(x, n:real): real;  **begin**  p:= exp(n \* ln(x))  **end**;  **function** ctg(x: real): real;  **begin**  ctg:= cos(x) / sin(x)  **end**;  **procedure** pro (x: real; **var** y: real);  **var**  z, a: real;  **begin**  z:= 2 \* p(x, 3 / 2) + ctg(x + 2);  a:= 3 \* p(x, 7 / 9) + ctg(x + 3);  y:= (ctg(x) - ctg(z)) / (ctg(a) + ctg(x)) - ctg(z)  **end**;  **begin**  pro (2, y);  writeln(y)  **end**.  3.59902982359085 |
| Задание 2 | Задание 4 |
| **program** lab07\_zad2;  **var**  y, x: real;  **function** f(x: real): real;  **begin**  **if** (x >= -2) **and** (x < 2) **then**  f:= sqr(x)  **else**  **if** x >= 2 **then**  f:= sqr(x) + 4 \* x + 5  **else**  f:= 1;  **end**;  **procedure** p(x: real; **var** y: real);  **begin**  **if** (x >= -2) **and** (x < 2) **then**  y:= sqr(x)  **else**  **if** x >= 2 **then**  y:= sqr(x) + 4 \* x + 5  **else**  y:= 1;  **end**;  **begin**  x:= -3;  **repeat**  //writeln('x= ', x:3, ' ', 'y = ',f(x):2);  p(x, y);  writeln('x= ', x:3, ' ', 'y = ', y:2);  x:= x + 1;  **until** x > 3  **end**.  x= -3 y = 1  x= -2 y = 4  x= -1 y = 1  x= 0 y = 0  x= 1 y = 1  x= 2 y = 17  x= 3 y = 26 | **program** lab07\_zad4;  **var**  i: integer;  a, z: real;  **function** p(x, n: real): real;  **begin**  p:= exp(n \* ln(x))  **end**;  **function** f(a: real): real;  **begin**  **if** a < 5 **then**  f:= 1 / a  **else**  **if** (a > 5) **and** (a < 35) **then**  f:= 1 + 2 \* p(a, -3)  **else**  f:= p(25, 1 / sqrt(a))  **end**;  **procedure** pro (a, f:real; **var** z:real);  **begin**  z:= sqr(f) / sin(a) + 1 / a  **end**;  **begin**  **for** i:= 1 **to** 10 **do**  **begin**  a:= sqr(i) + cos(-i + p(2 \* i + 3, 1 / 3));  pro(a, f(a), z);  writeln(a:8:4, f(a):8:4, z:8:4);  **end**;  **end**.  A f(a) Z  1.7584 0.5687 0.8979  4.9962 0.2002 0.1584  9.6059 1.0023 -5.4728  15.7962 1.0005-11.2943  24.1190 1.0001 -1.1370  35.0759 1.7220 -5.9561  48.7201 1.5859 -2.4954  64.5804 1.4926 2.2791  81.9991 1.4268 6.5294  100.6426 1.3783 17.0672 |