

Лабораторна робота №3

Варіант 12

1. Постановка завдання

12	$y = -\frac{1}{2}\ln(1 - 2x \cos \frac{\pi}{3} + x^2)$	$0,1 \leq x \leq 0,8$	35	$S = \frac{x \cos \frac{\pi}{3}}{1} + \frac{x^2 \cos 2 \frac{\pi}{3}}{2} + \dots + \frac{x^n \cos n \frac{\pi}{3}}{n}$
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2. Текст програми

```
#include <stdio.h>
#include <math.h>

int main(void)
{
    double x, sn = 0.0, se = 0.0;
    int i = 1;

    for(x = 0.1; x < 0.81; x += 0.07)
    {
        for(int n = 1; n < 35; n++)
        {
            sn += (pow(x,n)*cos(n*3.14/3))/n;
        }

        do {
            se += (pow(x,i)*cos(i*3.14/3))/i;
            i++;
        } while(se < 0.0001);
        double y = (-0.5)*log(1-(2*x*cos(3.14/3)) + pow(x,2));

        printf("X = %.2f    SN = %f    SE = %f    Y = %f\n", x, sn, se, y);
    }
}
```

3. Результат виконання програми

```
jharvard@appliance (~/.Labs): ./Lab3_1
X = 0.10      SN = 0.047206      SE = 0.050046      Y = 0.047206
X = 0.17      SN = 0.123348      SE = 0.042834      Y = 0.076142
X = 0.24      SN = 0.224174      SE = 0.038226      Y = 0.100826
X = 0.31      SN = 0.344691      SE = 0.037068      Y = 0.120517
X = 0.38      SN = 0.479252      SE = 0.037856      Y = 0.134561
X = 0.45      SN = 0.621704      SE = 0.039240      Y = 0.142452
X = 0.52      SN = 0.765597      SE = 0.039979      Y = 0.143893
X = 0.59      SN = 0.904425      SE = 0.039068      Y = 0.138828
X = 0.66      SN = 1.031875      SE = 0.036428      Y = 0.127451
X = 0.73      SN = 1.142056      SE = 0.034260      Y = 0.110181
X = 0.80      SN = 1.229658      SE = 0.038125      Y = 0.087615
jharvard@appliance (~/.Labs):
```