**מעבדה מס2 :קלט/פלט,סוגי משתנים,פעולות ופונקציות מתמטיות**

שאלה מס 1 :

קלט:

#include <stdio.h>

#include<math.h>

int main()

{

//Defining variables required for the program

int i,num;

double num2,num3;

printf("Enter a number that you want: ");

//Receiving a specific number from the user

scanf("%d", &num);

printf("Number\tSquare\tCube\n");

//A loop that executes the print command for the four numbers following the received number as required by the program

for (i = 0; i < 5; i++)

{

//Executing an order to raise the required number and the four numbers following it for the second and third pow using the function math(pow) to help us

num2= pow((num + i),2);

num3= pow((num + i), 3);

//A print order appropriate to the program requirements

printf("%4d\t%10.0f\t%10.0f\n", num + i, num2, num3);

}

return 0;

}

פלט:

|  |  |
| --- | --- |
| פלט | קלט |
|  | -6 |
|  | -2 |
|  | -7 |
|  | 0 |

שאלה מס 2 :

קלט:

#include <stdio.h>

int main()

{

//Defining variables required for the program

float edge, height;

printf("Enter a triangle edge and its height respectively,please:");

//Receiving values for variables (edge and height of the triangle) from the user

scanf("%f%f", &edge, &height);

//Definition of a variable that expresses the area of a triangle by multiplying the edge and height and dividing the result by 2

float area = (edge \* height) / 2;

//A printing process suitable for the program (printing the first three intervals of the output)

printf("The triangle area is %10.3f", area);

return 0;

}

פלט:

|  |  |  |  |
| --- | --- | --- | --- |
|  | אורך צלע | גובה לצלע | הפלט המתבקש |
| א | 3 | 5 |  |
| ב | 20.012 | 312.45 |  |

שאלה מס 3:

קלט :

#include <stdio.h>

#include <math.h>

int main()

{

char ch;

printf("Enter an English lowercase letter, please: ");

//this line is to allow the user to write the value of the char (lower case letter)

scanf("%c", &ch);

//%c and %d converts the value of ch to a string and its ascii code

printf("The ASCII code of '%c' is %d\n", ch, ch);

// same as the previos line but her we print the capital letter of the ch

printf("The ASCII code of '%c' is %d\n", ch - 32, ch - 32);

return 0;

}

פלט :

|  |  |  |
| --- | --- | --- |
| הרצה | קלט | פלט |
| א | a |  |
| ב | q |  |

שאלה מס 4 :

קלט:

#include <stdio.h>

#include <math.h>

int main()

{

float a, b;

double x;

printf("given the equation a^x=b \n");

printf("enter a and b repectively please : ");

//we allow the user to enter the values of a and b

scanf("%f %f", &a, &b);

// this equation based on the logarithmic rules gives us the value of x

x = log(b) / log(a);

printf("x is : %g", x);

return 0;

}

פלט:

|  |  |  |  |
| --- | --- | --- | --- |
|  | a | b | הפלט המתבקש |
| א | 2 | 32 |  |
| ב | 2 | 1024 |  |
| ג | 12 | 86 |  |
| ד | 1.5 | 2.25 |  |

שאלה מס 5

קלט:

#include <stdio.h>

#include <math.h>

int main()

{

//solution represnts the equation

double x, solution;

printf("enter x please: ");

//allow us to enter a double number

scanf("%lf", &x);

//this is the wanted equation and pow used to raise a number to a power

solution = x + pow((1.0 / 3.0) \* pow(x, 4) + 2 \* pow(x, 0.5), 0.2);

// we used here the %s to allow us to print the char %lf in the sentence

printf("output using %s format with 2 digits after dot.\n", "%lf");

// %.2lf prints the values with 2 decimal points

printf("x+(1/3\*x^4 + 2\*x^(1/2))^(1/5) = %.2lf+(1/3\*%.2lf^4 + 2\*%.2lf^(1/2))^(1/5) = %.2lf \n", x, x, x, solution);

// we used here the %s to allow us to print the char %g in the sentence

printf("\noutput using %s format:\n", "%g");

// %g prints the values without extra zeros

printf("x+(1/3\*x^4 + 2\*x^(1/2))^(1/5) = %g+(1/3\*%g^4 + 2\*%g^(1/2))^(1/5)= %g", x, x, x, solution);

return 0;

}

פלט:

|  |  |
| --- | --- |
| X | הפלט המבוקש |
| 24 |  |
| 12.25 |  |