** Department of Electrical and Computer Engineering, NSU**

**CSE 115L: Fundamentals of Computer Programming (Section 4)**

**Lab 03 (Arithmetic Operations & Functions) Faculty: Rsl**

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| Ex-1 Other Usable Operators |
| #include <stdio.h>  int main()  {  int a = 10,b = 4;  a += b;  printf("a+=b or a=a+b : %d \n",a);  int c=5,d=2;  c -= d;  printf("c-=d or c=c-d : %d \n",c);  int e=3,f=5;  e \*= f;  printf("e\*=f or e=e\*f : %d \n",e);  int g=15,h=3;  g/=h;  printf("g/=h or g=g/h : %d \n",g);  int i=20,j=2;  i%=j;  printf("i%%=j or i=i%%j : %d \n",i);  return 0;  } |

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| Ex-1 Use of pow() to Find f(x) = 2x² + 3x + 1 | Ex-2 Use of pow() and sqrt() to Find f(x) = √(3x³ + 2x² + 4) |
| #include<stdio.h>  #include<math.h>  int main()  {  int x, result;  printf("Enter a number:");  scanf("%d",&x);  result = 2\*pow(x,2)+3\*x+1;  printf("%d",result);  return 0;  } | #include<stdio.h>  #include<math.h>  int main()  {  int x;  double result;  printf("Enter a number:");  scanf("%d",&x);  result = sqrt(3\*pow(x,3)+2\*pow(x,2)+4);  printf("%lf",result);  return 0;  } |

**Some Useful C Library Functions:**

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| **Function** | **Header** | **Purpose** | **Argument(s)** | **Result** |
| abs(x) | <stdlib.h> | Returns the absolute value of its integer arguments | Int | int |
| ceil(x) | <math.h> | Returns the smallest integral value that is not less that x | Double | double |
| pow(x,y) | <math.h> | Returns x raised to the power of y | Double | double |
| cos(x) | <math.h> | Returns the cosine of angle x | Double(radians) | Double |
| sqrt(x) | <math.h> | Returns the non negative square root of x for x>= 0.0 | Double | Double |

**Task (10 marks)**

1. Write a program that finds the height and area of a right triangle (90 Degree) using Pythagorean theorem. Take hypotenuse and base as input from the user. Use pow() and sqrt() function.

**Sample Output**

Enter base: 3

Enter hypotenuse: 5

Height is: 4.00

Area is: 6.00

2. Write a function that prints the following pattern using only printf().

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