

## Arithmetic Operator

## ME 172

## Computer Programming Language Sessional

## Lecture 3

Arithmetic Operator  
and  
math.h library functions

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## Arithmetic Operator

## Arithmetic Operator

C supports all basic arithmetic operations. The operators are –

Operator	Name	Example	Example Result
+	Addition	11 + 51	62
-	Subtraction	34 - 27	7
/	Division	10/3	3.333333
*	Multiplication	10*3	30
%	Modulus	10%3	1

The Modulus (%) operator

**a%b** returns the REMAINDER that occurs after performing **a/b**.  
For this operator, a and b MUST be integers!

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## Arithmetic Operator

## Assignment Operator

The basic assignment operator is (=)

**Operand= Expression;**

Where the left operand gets the value of the expression on the right.

`a=3;` this is also an assignment operator

`x=x+3;`

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## Arithmetic Operator

## gets() and puts()

```
gets(string name);
```

```
puts(string name);
```

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

```
void main()
```

```
{
```

```
char dept[25];
```

```
printf("Enter your Department Name:\n");
```

```
gets(dept); // "Mechanical Engineering"
```

```
puts(dept);
```

```
}
```

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## Arithmetic Operator

`gets() and puts()`

Enter your Department Name:

Mechanical Engineering – gets()

Mechanical Engineering – puts()

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## Arithmetic Operator

`getchar() and putchar() FUNCTION`Sample Program

```
void main()
{
char a;
printf("Enter your Department Name:\n");
a=getchar();
putchar(a);
}
```

```
Enter your Department Name:
ME
M
```

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## Arithmetic Operator

**sin(), cos() tan() FUNCTION**

```
double sin(double x);

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

void main(void)
{
    double result, x = 0.5;

    result = sin(x);
    printf("The sin of %lf is %lf\n", x, result);
}
```

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**fabs() function**

```
double fabs(double x);
- calculate the absolute value of a floating-point number
```

```
#include<stdio.h>
#include<math.h>
void main()
{
    printf (" A bsolute value of -3.51 is %lf\n", fabs(-3.51));
}
```

Absolute value of -3.51 is 3.510000

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## Arithmetic Operator

## abs() function

Double abs(double x);

-gets the absolute value of an integer

```
#include <stdio.h>
#include <math.h>
int main(void)
{
    int number = -1234;

    printf("number: %d absolute value: %d\n", number,
        abs(number));
    return 0; }
```

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## Arithmetic Operator

## sqrt() function

double sqrt(double x);

#include <math.h>

#include <stdio.h>

```
int main(void)
{
    double x = 4.0, result;
    result = sqrt(x);
    printf("The square root of %lf is %lf\n", x, result);
    return 0;
}
```

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## pow() function

```
double pow(double x, double y);
```

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

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

```
void main()
```

```
{
```

```
printf ("2 ^ 8 = %lf\n", pow (2.0,8.0));
```

```
}
```

Output of the pow example program above:

2 ^ 8 = 256.000000

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## Arithmetic Operator

## Problem 1

- Take input **-30.42** as number from keyboard and find **sine** of its absolute value.
- Using Stephen-Boltzman law to find Emissive power of black body at 400 K. Consider  $\sigma = 5.67 \times 10^{-8} \text{ Wm}^{-2} \text{ K}^{-4}$

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