

# E1-C Programming Exercises

## Operator and Expression

1. Write a C program to input two numbers from user and calculate their sum.

### Input

Input first number: 20  
Input second number: 10

### Output

Sum = 30

2. Write a C program to input two numbers and perform all arithmetic operations.

### Input

First number: 10  
Second number: 5

### Output

Sum = 15  
Difference = 5  
Product = 50  
Quotient = 2  
Modulus = 0

3. Write a C program to input length and width of a rectangle and calculate perimeter of the rectangle.

### Input

Enter length: 5  
Enter width: 10

### Output

Perimeter of rectangle = 30 units

4. Write a C program to input length and width of a rectangle and find area of the given rectangle.

### Input

Enter length: 5  
Enter width: 10

### Output

Area of rectangle = 50 sq. units

## 5. Write a C program to input radius of a circle from user and find diameter, circumference and area of the circle.

### Input

Enter radius: 10

### Output

Diameter = 20 units  
Circumference = 62.79 units  
Area = 314 sq. units

Hint: Diameter, circumference and area of a circle formula is given by -

$$D = 2r$$

$$C = 2\pi r$$

$$A = \pi r^2$$

## 6. Write a C program to input length in centimeter and convert it to meter and kilometer.

### Input

Enter length in centimeter = 1000

### Output

Length in meter = 10 m  
Length in kilometer = 0.01 km

Hint: Centimeter to meter and centimeter to kilometer conversion formula is given by -

$$1\text{ m} = 100\text{ cm}$$

$$1\text{ km} = 100000\text{ cm}$$

**7. Write a C program to input temperature in Centigrade and convert to Fahrenheit.**

**Input**

Enter temperature in Celsius = 100

**Output**

Temperature in Fahrenheit = 212 F

**8. Write a C program to input temperature in degree Fahrenheit and convert it to degree Centigrade.**

**Input**

Temperature in fahrenheit = 205

**Output**

Temperature in celsius = 96.11 C

Hint: Temperature conversion formula from degree Celsius to Fahrenheit is given by -

$$^{\circ}\text{F} = \left(^{\circ}\text{C} * \frac{9}{5}\right) + 32$$

**9. Write a C program to input number of days from user and convert it to years, weeks and days.**

**Input**

Enter days: 373

**Output**

373 days = 1 year/s, 1 week/s and 1 day/s

Hint: Days conversion formula:

1 year = 365 days (Ignoring leap year)

1 week = 7 days

Using this we can define our new formula to compute years and weeks.

```
year = days / 365
```

```
week = (days - (year * 365)) / 7
```

**10. Write a C Program to input two angles from user and find third angle of the triangle.**

**Input**

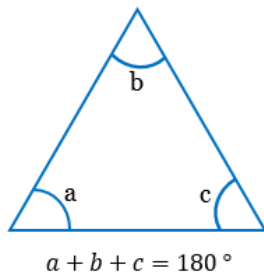
```
Enter first angle: 60
```

```
Enter second angle: 80
```

**Output**

```
Third angle = 40
```

Hint: Sum of angles of a triangle is  $180^\circ$ .



Let us apply basic math to derive formula for third angle. If two angles of a triangle are given, then third angle of triangle is given by -

$$c = 180^\circ - (a + b)$$

**11. Write a C program to input base and height of a triangle and find area of the given triangle.**

**Input**

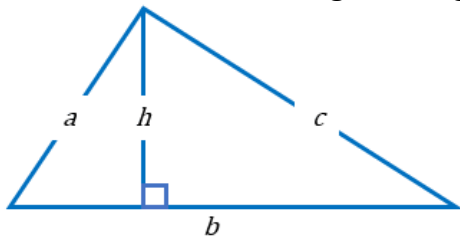
```
Enter base of the triangle: 10
```

```
Enter height of the triangle: 15
```

**Output**

```
Area of the triangle = 75 sq. units
```

Hint: Area of a triangle is given by formula:



$$A = \frac{h b}{2}$$

Where **b** is base and **h** is height of the triangle.

- 12. Write a C program to input side of an equilateral triangle from user and find area of the given triangle.**

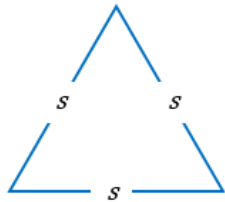
**Input**

Enter side of the equilateral triangle: 10

**Output**

Area of equilateral triangle = 43.3 sq. units

Hint: Area of an equilateral triangle is given by formula.



$$A = \frac{\sqrt{3}}{4} s^2$$

C equivalent expression to find area of equilateral triangle  
- (sqrt(3) / 4) \* (side \* side)

- 13. Write a C program to input marks of five subjects of a student and calculate total, average and percentage of all subjects.**

**Input**

Enter marks of five subjects: 95 76 85 90 89

**Output**

Total = 435  
Average = 87  
Percentage = 87.00

**14. Write a C program to input principle, time and rate (P, T, R) from user and find Simple Interest.**

**Input**

Enter principle: 1200  
Enter time: 2  
Enter rate: 5.4

**Output**

Simple Interest = 129.600006

Hint: Simple interest formula is given by.

$$SI = \frac{P \times T \times R}{100}$$

Where,

P is the principle amount

T is the time and

R is the rate

**15. Write a C program to input principle (amount), time and rate (P, T, R) and find Compound Interest.**

**Input**

Enter principle (amount): 1200  
Enter time: 2  
Enter rate: 5.4

**Output**

Compound Interest = 1333.099243

Hint: Formula to calculate compound interest annually is given by.

$$CI = P \left( 1 + \frac{R}{100} \right)^T$$

Where,

P is principle amount

R is the rate and  
T is the time span