1. Write a program in C++ to print a welcome text in a separate line.

2. Write a program in C++ to print the sum of two numbers.
Sample Output:
Print the sum of two numbers :

The sum of 29 and 30 is : 59

3. Write a program in C++ to find Size of fundamental data types.
Sample Output:
Find Size of fundamental data types :

The sizeof(char) is : 1 bytes
The sizeof(short) is : 2 bytes
The sizeof(int) is : 4 bytes
The sizeof(long) is : 8 bytes
The sizeof(long long) is : 8 bytes
The sizeof(float) is : 4 bytes
The sizeof(double) is : 8 bytes
The sizeof(long double) is : 16 bytes
The sizeof(bool) is : 1 bytes

4. Write a program in C++ to print the sum of two numbers using variables.
Print the sum of two numbers :

The sum of 29 and 30 is : 59

5. Write a program in C++ to check the upper and lower limits of integer.
Expected Output:
Check the upper and lower limits of integer :

The maximum limit of int data type : 2147483647

The minimum limit of int data type : -2147483648

The maximum limit of unsigned int data type : 4294967295

The maximum limit of long long data type : 9223372036854775807

The minimum limit of long long data type : -9223372036854775808

The maximum limit of unsigned long long data type : 18446744073709551615

The Bits contain in char data type : 8

The maximum limit of char data type : 127

The minimum limit of char data type : -128

The maximum limit of signed char data type : 127

The minimum limit of signed char data type : -128

The maximum limit of unsigned char data type : 255

The minimum limit of short data type : -32768

The maximum limit of short data type : 32767

The maximum limit of unsigned short data type : 65535

6. Write a program in C++ to check whether the primitive values crossing the limits or not.
Check whether the primitive values crossing the limits or not :

The Gender is : F

Is she married? : 1

Number of sons she has : 2

Year of her appointment : 2009

Salary for a year : 1500000

Height is : 79.48

GPA is 4.69

Salary drawn upto : 12047235

Balance till : 995324987

7. Write a program in C++ to display various type or arithmetic operation using mixed data type.
Sample output:

Display arithmetic operations with mixed data type :
----
5 + 7 = 12
3.7 + 8.0 = 11.7
5 + 8.0 = 13.0
5 - 7 = -2
3.7 - 8.0 = -4.3
5 - 8.0 = -3.0
5 * 7 = 35
3.7 * 8.0 = 29.6
5 * 8.0 = 40.0
5 / 7 = 0
3.7 / 8.0 = 0.5
5 / 8.0 = 0.6

8. Write a program in C++ to check overflow/underflow during various arithmetical operation.
Sample Output:
Check overflow/underflow during various arithmetical operation :
Range of int is [-2147483648, 2147483647]

Overflow the integer range and set in minimum range : -2147483648
Increasing from its minimum range : -2147483647
Product is :1
Underflow the range and set in maximum range : 2147483647
Decreasing from its maximum range : 2147483646
Product is : 0

9. Write a program in C++ to display the operation of pre and post increment and decrement.
Sample Output:
Display the operation of pre and post increment and decrement :

The number is : 57

After post increment by 1 the number is : 58
After pre increment by 1 the number is : 59
After increasing by 1 the number is : 60
After post decrement by 1 the number is : 59
After pre decrement by 1 the number is : 58
After decreasing by 1 the number is : 57

10. Write a program in C++ to formatting the output.
Sample Output:
Formatting the output :

The value of pi : 3.1416
The value of pi 4 decimal place of total width 8 : | 3.1416|
The value of pi 4 decimal place of total width 10 : | 3.1416|
The value of pi 4 decimal place of total width 8 : |--3.1416|
The value of pi 4 decimal place of total width 10 : |----3.1416|
The value of pi in scientific format is : 3.1416e+00
Status in number : 0
Status in alphabet : false

11. Write a program in C++ to print the result of the specified operations.
Sample Output:
Print the result of some specific operation :

Result of 1st expression is : 23
Result of 2nd expression is : 5
Result of 3rd expression is : 12
Result of 4th expression is : 3

12. Write a program in C++ to add two numbers accept through keyboard.
Sample Output:
Original array:
[10, 20, 30]
After append values to the end of the array:

[10 20 30 40 50 60 70 80 90]

13. Write a program in C++ to swap two numbers.
Sample Output:
Swap two numbers :

Input 1st number : 25
Input 2nd number : 39
After swapping the 1st number is : 39
After swapping the 2nd number is : 25

14. Write a program in C++ to calculate the volume of a sphere.
Sample Output:
Calculate the volume of a sphere :

Input the radius of a sphere : 6
The volume of a sphere is : 904.32

15. Write a program in C++ to calculate the volume of a cube.
Sample Output:
Calculate the volume of a cube :

Input the side of a cube : 5
The volume of a cube is : 125

16. Write a program in C++ to calculate the volume of a cylinder.
Sample Output:
Calculate the volume of a cylinder :

Input the radius of the cylinder : 6
Input the height of the cylinder : 8
The volume of a cylinder is : 904.32

17. Write a program in C++ to find the Area and Perimeter of a Rectangle.
Sample Output:
Find the Area and Perimeter of a Rectangle :

Input the length of the rectangle : 10
Input the width of the rectangle : 15
The area of the rectangle is : 150
The perimeter of the rectangle is : 50

18. Write a program in C++ to find the area of any triangle using Heron's Formula.
Sample Output:
Find the area of any triangle using Heron's Formula :

Input the length of 1st side of the triangle : 5
Input the length of 2nd side of the triangle : 5
Input the length of 3rd side of the triangle : 5
The area of the triangle is : 10.8253

19. Write a program in C++ to find the area and circumference of a circle.
Sample Output:
Find the area and circumference of any circle :

Input the radius(1/2 of diameter) of a circle : 5
The area of the circle is : 78.5397
The circumference of the circle is : 31.4159

20. Write a program in C++ to convert temperature in Celsius to Fahrenheit.
Sample Output:
Convert temperature in Celsius to Fahrenheit :

Input the temperature in Celsius : 35
The temperature in Celsius : 35

The temperature in Fahrenheit : 95

21. Write a program in C++ to convert temperature in Fahrenheit to Celsius.
Sample Output:
Convert temperature in Fahrenheit to Celsius :

Input the temperature in Fahrenheit : 95
The temperature in Fahrenheit : 95
The temperature in Celsius : 35

22. Write a program in C++ to find the third angle of a triangle.
Sample Output:
Find the third angle of a triangle :

Input the 1st angle of the triangle : 30
Input the 2nd angle of the triangle : 60
The 3rd of the triangle is : 90

23. Write a program in C++ that converts kilometers per hour to miles per hour.
Sample Output:
Convert kilometers per hour to miles per hour :

Input the distance in kilometer : 25
The 25 Km./hr. means 15.5343 Miles/hr.

24. Write a program in C++ to convert temperature in Kelvin to Fahrenheit.
Sample Output:
Convert temperature in Kelvin to Fahrenheit :

Input the temperature in Kelvin : 300
The temperature in Kelvin : 300
The temperature in Fahrenheit : 80.33

25. Write a program in C++ to convert temperature in Kelvin to Celsius.
Sample Output:
Convert temperature in Kelvin to Celsius :

Input the temperature in Kelvin : 300
The temperature in Kelvin : 300
The temperature in Celsius : 26.85

26. Write a program in C++ to convert temperature in Fahrenheit to Kelvin.
Sample Output:
Convert temperature in Fahrenheit to Kelvin :

Input the temperature in Fahrenheit : 80.33
The temperature in Fahrenheit : 80.33
The temperature in Kelvin : 300

27. Write a program in C++ to convert temperature in Celsius to Kelvin.
Sample Output:
Convert temperature in Celsius to Kelvin :

Input the temperature in Celsius : 26.85
The temperature in Celsius : 26.85
The temperature in Kelvin : 300

28. Write a program in C++ to find the area of Scalene Triangle.
Sample Output:
Find the area of Scalene Triangle :

Input the length of a side of the triangle : 5
Input the length of another side of the triangle : 6
Input the angle between these sides of the triangle : 6
The area of the Scalene Triangle is : 1.56793

29. Write a program in C++ to compute quotient and remainder.
Sample Output:
Compute quotient and remainder :

Input the dividend : 25
Input the divisor : 3
The quotient of the division is : 8
The remainder of the division is : 1

30. Write a program in C++ to compute the total and average of four numbers.
Sample Output:
Compute the total and average of four numbers :

Input 1st two numbers (separated by space) : 25 20
Input last two numbers (separated by space) : 15 25
The total of four numbers is : 85
The average of four numbers is : 21.25

31. Write a program in C++ to input a single digit number and print a rectangular form of 4 columns and 6 rows.
Sample Output:
Make a rectangular shape by a single digit number :

Input the number : 5
5555
5 5
5 5
5 5
5 5
5555

32. Write a program in C++ to check whether a number is positive, negative or zero.
Sample Output:

Check whether a number is positive, negative or zero :

Input a number : 8
The entered number is positive.

33. Write a program in C++ to divide two numbers and print on the screen.
Sample Output:
Divide two numbers and print:

The quotient of 30 and 10 is : 3

34. Write a C++ program to display the current date and time.
Sample Output:
Display the Current Date and Time :
----
seconds = 57
minutes = 33
hours = 12
day of month = 6
month of year = 7
year = 2017
weekday = 4
day of year = 186
daylight savings = 0
Current Date: 6/7/2017
Current Time: 12:33:57

35. Write a program in C++ to compute the specified expressions and print the output.
Sample Output:
Compute the specified expressions and print the output:

Result of the expression (25.5 * 3.5 - 3.5 * 3.5) / (40.5 - 4.5) is : 2.13889

36. Write a program in C++ to test the Type Casting.
Sample Output:
Formatting the output using type casting:

Print floating-point number in fixed format with 1 decimal place:
Test explicit type casting :
0
0.5
0.5
0.0
Test implicit type casting :
0
0
int implicitly casts to double:
4.0
double truncates to int!:
6

37. Write a program in C++ to print a mystery series from 1 to 50.
Sample Output:
Print a mystery series:

The series are:
5 4 2 7 11 10 8 13 17 16 14 19 23 22 20 25 29 28 26 31 35 34 32 37 41 4 0 38
43 47 46 44 49

38. Write a program in C++ that takes a number as input and prints its
multiplication table upto 10.
Sample Output:
Print the multiplication table of a number upto 10:

Input a number: 5
5 x 1 = 5
5 x 2 = 10

```
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

39. Write a program in C++ to print the following pattern.
Sample Output:

```
  xxxxx
x       x           x               x
x                   x               x
x                   xxxxxxx   xxxxxxx
x                   x               x
x       x           x               x
  xxxxx
```

40. Write a program in C++ to print the area and perimeter of a rectangle.
Sample Output:
Print the area and perimeter of a rectangle:

Input the width of the rectangle: 8.5
Input the height of the rectangle: 5.6
The area of the rectangle is: 47.6
The perimeter of the rectangle is: 28.2

41. Write a program in C++ to print an American flag on the screen.
Sample Output:

```
 Print the American flag:
------------------------------
* * * * * * ==================================
 * * * * *  ==================================
* * * * * * ==================================
```

```
 *   *   *   *   *    ================================
*   *   *   *   *   *  ================================
  *   *   *   *   *    ================================
*   *   *   *   *   *  ================================
  *   *   *   *   *    ================================
*   *   *   *   *   *  ================================
============================================
============================================
============================================
============================================
============================================
============================================
```

42. Write a language program in C++ which accepts the user's first and last name and print them in reverse order with a space between them.
Sample Output:
Print the name in reverse where last name comes first:

Input First Name: Alexandra
Input Last Name: Abramov
Name in reverse is: Abramov Alexandra

43. Write a language program which accepts the radius of a circle from the user and compute the area and circumference.
Sample Output:
Find the area and circumference of any circle :

Input the radius(1/2 of diameter) of a circle : 5
The area of the circle is : 78.5397
The circumference of the circle is : 31.4159

44. Write a language program to get the volume of a sphere with radius 6.
Sample Output:
Calculate the volume of a sphere :

Input the radius of a sphere : 5

The volume of a sphere is : 523.333

45. Write a program in C++ to calculate the volume of a cube.
Sample Output:
Calculate the volume of a cube :

Input the side of a cube : 5
The volume of a cube is : 125

46. Write a program in C++ to calculate the volume of a cylinder.
Sample Output:
Calculate the volume of a cylinder :

Input the radius of the cylinder : 4
Input the height of the cylinder : 8
The volume of a cylinder is : 401.92

47. Write a program in C++ to find the area of any triangle using Heron's Formula.
Sample Output:
Find the area of any triangle using Heron's Formula :

Input the length of 1st side of the triangle : 5
Input the length of 2nd side of the triangle : 6
Input the length of 3rd side of the triangle : 7
The area of the triangle is : 14.6969

48. Write a program in C++ which swap the values of two variables not using third variable.
Sample Output:
Swap two numbers without using third variable:

Input 1st number : 25

Input 2nd number : 20
After swapping the 1st number is : 20
After swapping the 2nd number is : 25

49. Write a program in C++ to print the code (ASCII code / Unicode code etc.) of a given character.
Sample Output:
Print code (ASCII code / Unicode code etc.) of a given character:

Input a character: a
The ASCII value of a is: 97
The character for the ASCII value 97 is: a

50. Write a program in C++ to enter length in centimeter and convert it into meter and kilometer.
Sample Output:
Convert centimeter into meter and kilometer :

Input the distance in centimeter : 250000
The distance in meter is: 2500
The distance in kilometer is: 2.5

51. Write a program in C++ that converts kilometers per hour to miles per hour.
Sample Output:
Convert kilometers per hour to miles per hour :

Input the distance in kilometer : 5
The 5 Km./hr. means 3.10686 Miles/hr.

52. Write a program in C++ to enter two angles of a triangle and find the third angle.
Sample Output:
Find the third angle of a triangle :

Input the 1st angle of the triangle : 35
Input the 2nd angle of the triangle : 35
The 3rd of the triangle is : 110

53. Write a program in C++ to calculate area of an equilateral triangle.
Sample Output:
Calculate the area of the Equilateral Triangle :

Input the value of the side of the equilateral triangle: 5
The area of equilateral triangle is: 10.8253

54. Write a program in C++ to enter P, T, R and calculate Simple Interest.
Sample Output:
Calculate the Simple Interest :

Input the Principle: 20000
Input the Rate of Interest: 10
Input the Time: 1.5
The Simple interest for the amount 20000 for 1 years @ 10 % is: 2000

55. Write a program in C++ to enter P, T, R and calculate Compound Interest.
Sample Output:
Calculate the Compound Interest :
------------------------------------- Input the Principle: 20000
Input the Rate of Interest: 10
Input the Time: 1.5
The Interest after compounded for the amount 20000 for 1.5 years @ 10
% is: 3073.8 The total amount after compounded for the amount 20000 for 1.5
years @
10 % is: 23073.8

56. Write a program in C++ to show the manipulation of a string.
Sample Output:
Show the manipulation of a string:

The string:: welcome, w3resource
The length of the string:: 19
The char at index 1 of the string:: e
The char at index 1 of the string [using array]:: e
Is the string empty:: 0
Retrieve the sub-string from 3rd position for 4 characters:: come
The sub-string replace by 'went':: welwent, w3resource
Append a string 'end' at last of the string:: welwent, w3resource end
Append a string 'end' at last of the string using operator:: welwent, w3resource
end end
The string 'insert' inserting at 3rd position of the string:: wel inse rt went,
w3resource end
The new string is:: wel insert went, w3resource end
Input a sentence:: The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.

57. Write a program in C++ to print the area of a hexagon.
Sample Output:
Print the area of a hexagon:

Input the side of the hexagon: 6
The area of the hexagon is: 93.5307

58. Write a program in C++ to print the area of a polygon.
Sample Output:
Print the area of a polygon:

Input the number of sides of the polygon: 7
Input the length of each side of the polygon: 6

The area of the polygon is: 130.821

59. Write a program in C++ to compute the distance between two points on the surface of earth.
Sample Output:
Print the the distance between two points on the surface of earth:

Input the latitude of coordinate 1: 25
Input the longitude of coordinate 1: 35
Input the latitude of coordinate 2: 35.5
Input the longitude of coordinate 2: 25.5
The distance between those points is: 1480.08

60. Write a program in C++ to add two binary numbers.
Sample Output:
Addition of two binary numbers:

Input the 1st binary number: 1010
Input the 2nd binary number: 0011
The sum of two binary numbers is: 1101

61. Write a C++ program to swap first and last digits of any number.
Sample Output:
Input any number: 12345
The number after swapping the first and last digits are: 52341

62. Write a C++ program to which reads an given integer n and prints a twin prime which has the maximum size among twin primes less than or equals to n. According to wikipedia "A twin prime is a prime number that is either 2 less or 2 more than another prime number" for example, either member of the twin prime pair (41, 43). In other words, a twin prime is a prime that has a prime gap of two".

63. Write a C++ program which prints three highest numbers from a list of numbers in descending order.

64. Write a C++ program to compute the sum of the two given integers and count the number of digits of the sum value.

65. Write a C++ program to check whether given length of three side form a right triangle.

66. Write a C++ program to add all the numbers from 1 to a given number.
Add 1 to 4: 10
Add 1 to 100: 5050

67. Write a C++ program to which prints the central coordinate and the radius of a circumscribed circle of a triangle which is created by three points on the plane surface.

68. Write a C++ program to read seven numbers and sorts them in descending order.

69. Write a C++ program to read an integer n and prints the factorial of n, assume that n = 10.

70. Write a C++ program to replace all the lower-case letters of a given string with the corresponding capital letters.

71. Write a C++ program which reads a sequence of integers and prints mode values of the sequence. The number of integers is greater than or equals to 1 and less than or equals to 100.

Note: The mode of a set of data values is the value that appears most often.

72. Write a C++ program to which reads n digits chosen from 0 to 9 and counts the number of combinations where the sum of the digits equals to given number. Do not use the same digits in a combination.
For example, the combinations where n = 2 and s = 5 are as follows:
0 + 5 = 5
1 + 4 = 5
3 + 2 = 5

73. Write a C++ program that accepts sales unit price and sales quantity of various items and compute total sales amount and the average sales quantity. All input values must greater than or equal to 0 and less than or equal to 1,000, and the number of pairs of sales unit and sales quantity does not exceed 100. If a fraction occurs in the average of the sales quantity, round the first decimal place.

74. Write a C++ program that accepts various numbers and compute the difference between the highest number and the lowest number. All input numbers should be real numbers between 0 and 1,000,000. The output (real number) may include an error of 0.01 or less.

75. Write a C++ program to compute the sum of the specified number of Prime numbers.
For example when n = 7,
s = 2 + 3 + 5 + 7 + 11 + 13 + 17 = 58.

76. An even number of 4 or more can be represented by the sum of two prime numbers. This is called Goldbach expectation, and it is confirmed that it is correct up to a considerably large number by computer calculation. For example, 10 can be expressed as the sum of two prime numbers 7 + 3, 5 + 5. Write a C++ program that accept an integer (n) from the user and outputs the number of combinations that express n as a sum of two prime numbers.

Note: n should be greater than or equal to 4 and less than or equal to 50,000.

77. There are four different points on a plane: A(x1, y1), B(x2, y2), C(x3, y3) and D(x4, y4).
Write a C++ program to check whether two straight lines AB and CD are orthogonal or not.
Input:
0 6
5 6
3 8
3 2
Output:
yes

78. Write a C++ program to sum of all positive integers in a sentence.
Sample string: There are 12 chairs, 15 desks, 1 blackboard and 2 fans.
Output: 30

79. Write a C++ program to display all the leap years between two given years. If there is no leap year in the given period,display a suitable message.
Note: Range of the two given years: (0 < year1 = year2 < 3,000).

80. Write a C++ program that accepts n different numbers (0 to 100) and s which is equal to the sum of the n different numbers.
Your job is to find the number of combination of n numbers and the same number can not be used for one combination.

81. Write a C++ program to which replace all the words "dog" with "cat"
Sample Text: The quick brown fox jumps over the lazy dog. You can assume that the number of characters in a text is less than or equal to 1000.

82. Write a C++ program which reads a list of pairs of a word and a page number, and prints the word and a list of the corresponding page numbers.

+

83. Write a C++ program to convert a given number into hours and minutes. Separate the number of hours and minutes with a colon.
For example if a given number is 67 the output should be 1:7

84. Write a C++ program to check whether the sequence of the numbers in a given array is a "Arithmetic" or "Geometric" sequence. Return -1 if the sequenc is not "Arithmetic" or "Geometric".
From Wikipedia
In mathematics, an arithmetic progression (AP) or arithmetic sequence is a sequence of numbers such that the difference between the consecutive terms is constant. Difference here means the second minus the first. For instance, the sequence 5, 7, 9, 11, 13, 15, . . . is an arithmetic progression with common difference of 2.
In mathematics, a geometric progression, also known as a geometric sequence, is a sequence of numbers where each term after the first is found by multiplying the previous one by a fixed, non-zero number called the common ratio. For example, the sequence 2, 6, 18, 54, ... is a geometric progression with common ratio 3. Similarly 10, 5, 2.5, 1.25, ... is a geometric sequence with common ratio 1/2.
Example:
Sample Input: int nums1[] = { 1, 3, 5, 7 }
Sample Output: Arithmetic sequence

85. Write a C++ program find the total number of minutes between two given times (formatted with a colon and am or pm).
Example:
Sample Input: Minutes between 12:01AM to 12:00PM:
Sample Output: Minutes between 12:01AM to 12:00PM: 1439