Magic number

1. #include <stdio.h>
2. #include <conio.h>
4. **int** main ()
5. {
6. // declare integer variables
7. **int** n, temp, rev = 0, digit, sum\_of\_digits = 0;
9. printf (" Enter a Number: \n");
10. scanf (" %d", &n); // get the number
12. temp = n; // assign the number to temp variable
14. // use while loop to calculate the sum of digits
15. **while** ( temp > 0)
16. {
17. // extract digit one by one and store into the sum\_of\_digits
18. sum\_of\_digits = sum\_of\_digits + temp % 10; /\* use modulus symbol to get the remainder of each iteration by temp % 10 \*/
19. temp = temp / 10;
20. }
22. temp = sum\_of\_digits; // assign the sum\_of\_digits to temp variable
23. printf (" \n The sum of the digits = %d", temp);
25. // get the reverse sum of given digits
26. **while** ( temp > 0)
27. {
28. rev = rev \* 10 + temp % 10;
29. temp = temp / 10;
30. }
32. printf (" \n The reverse of the digits = %d", rev);

35. printf (" \n The product of %d \* %d = %d", sum\_of\_digits, rev, rev \* sum\_of\_digits);
36. // use if else statement to check the magic number
37. **if** ( rev \* sum\_of\_digits == n)
38. {
39. printf (" \n %d is a Magic Number. ", n);
40. }
41. **else**
42. {
43. printf (" \n %d is not a Magic Number. ", n);
44. }
45. **return** 0;
47. }

Calculator

1. #include <stdio.h>
2. #include <math.h>
3. #include <stdlib.h>
5. **int** main()
6. {
7. // declaration of local variable op;
8. **int** op, n1, n2;
9. **float** res;
10. **char** ch;
11. **do**
12. {
13. // displays the multiple operations of the C Calculator
14. printf (" Select an operation to perform the calculation in C Calculator: ");
15. printf (" \n 1 Addition  \t \t 2 Subtraction \n 3 Multiplication \t 4 Division \n 5 Square \t \t 6 Square Root \n 7 Exit \n \n Please, Make a choice ");
17. scanf ("%d", &op); // accepts a numeric input to choose the operation

20. // use switch statement to call an operation
21. **switch** (op)
22. {
23. **case** 1:
24. // Add two numbers
25. printf (" You chose: Addition");
26. printf ("\n Enter First Number: ");
27. scanf (" %d", &n1);
28. printf (" Enter Second Number: ");
29. scanf (" %d", &n2);
30. res = n1 + n2; // Add two numbers
31. printf (" Addition of two numbers is: %.2f", res);
32. **break**; // break the function
34. **case** 2:
35. // Subtract two numbers
36. printf (" You chose: Subtraction");
37. printf ("\n Enter First Number: ");
38. scanf (" %d", &n1);
39. printf (" Enter Second Number: ");
40. scanf (" %d", &n2);
41. res = n1 - n2; // subtract two numbers
42. printf (" Subtraction of two numbers is: %.2f", res);
43. **break**; // break the function
45. **case** 3:
46. // Multiplication of the numbers
47. printf (" You chose: Multiplication");
48. printf ("\n Enter First Number: ");
49. scanf (" %d", &n1);
50. printf (" Enter Second Number: ");
51. scanf (" %d", &n2);
52. res = n1 \* n2; // multiply two numbers
53. printf (" Multiplication of two numbers is: %.2f", res);
54. **break**; // break the function
56. **case** 4:
57. // Division of the numbers
58. printf (" You chose: Division");
59. printf ("\n Enter First Number: ");
60. scanf (" %d", &n1);
61. printf (" Enter Second Number: ");
62. scanf (" %d", &n2);
63. **if** (n2 == 0)
64. {
65. printf (" \n Divisor cannot be zero. Please enter another value ");
66. scanf ("%d", &n2);
67. }
68. res = n1 / n2; // divide two numbers
69. printf (" Division of two numbers is: %.2f", res);
70. **break**; // break the function
72. **case** 5:
73. // getting square of a number
74. printf (" You chose: Square");
75. printf ("\n Enter First Number: ");
76. scanf (" %d", &n1);
78. res = n1 \* n1; // get square of a number
79. printf (" Square of %d number is: %.2f", n1, res);
80. **break**; // break the function
82. **case** 6:
83. // getting the square root of the number
84. printf (" You chose: Square Root");
85. printf ("\n Enter First Number: ");
86. scanf (" %d", &n1);
88. res = sqrt(n1); // use sqrt() function to find the Square Root
89. printf (" Square Root of %d numbers is: %.2f", n1, res);
90. **break**; // break the function
92. **case** 7:
93. printf (" You chose: Exit");
94. exit(0);
95. **break**; // break the function
97. **default**:
98. printf(" Something is wrong!! ");
99. **break**;
100. }
101. printf (" \n \n \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \n ");
102. } **while** (op != 7);
104. **return** 0;
105. }

Area of various geometrical shapes –

#include <stdio.h>

void main()

{

int fig\_code;

float side, base, length, breadth, height, area, radius;

printf("-------------------------**\n**");

printf(" 1 --> Circle**\n**");

printf(" 2 --> Rectangle**\n**");

printf(" 3 --> Triangle**\n**");

printf(" 4 --> Square**\n**");

printf("-------------------------**\n**");

printf("Enter the Figure code**\n**");

scanf("%d", &fig\_code);

switch(fig\_code)

{

case 1:

printf("Enter the radius**\n**");

scanf("%f", &radius);

area = 3.142 \* radius \* radius;

printf("Area of a circle = %f**\n**", area);

**break**;

case 2:

printf("Enter the breadth and length**\n**");

scanf("%f %f", &breadth, &length);

area = breadth \* length;

printf("Area of a Reactangle = %f**\n**", area);

**break**;

case 3:

printf("Enter the base and height**\n**");

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

area = 0.5 \* base \* height;

printf("Area of a Triangle = %f**\n**", area);

**break**;

case 4:

printf("Enter the side**\n**");

scanf("%f", &side);

area = side \* side;

printf("Area of a Square=%f**\n**", area);

**break**;

default:

printf("Error in figure code**\n**");

**break**;

}

}

Perimeter of various shapes

#include <stdio.h>

#include <math.h>

int main()

{

float radius, length, width, a, b, c, height;

int n;

float perimeter;

*//Perimeter of rectangle*

printf(" **\n** Perimeter of rectangle **\n**");

printf("---------------------------**\n**");

printf("**\n** Enter width and length of the rectangle : ");

scanf("%f%f", &width,& length);

perimeter = 2 \* (width + length);

printf("Perimeter of rectangle is: %.3f", perimeter);

*//Perimeter of triangle*

printf("**\n** Perimeter of triangle n");

printf("---------------------------n");

printf("**\n** Enter the size of all sides of the triangle : ");

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

perimeter = a + b + c;

printf("Perimeter of triangle is: %.3f", perimeter);

*//Perimeter of circle*

printf(" **\n** Perimeter of circle **\n**");

printf("---------------------------**\n**");

printf("**\n** Enter the radius of the circle : ");

scanf("%f", &radius);

perimeter = 2 \* (22 / 7) \* radius;

printf("Perimeter of circle is: %.3f", perimeter);

*//Perimeter of equilateral triangle*

printf(" **\n** Perimeter of equilateral triangle **\n**");

printf("---------------------------**\n**");

printf("**\n** Enter any side of the equilateral triangle : ");

scanf("%f", &a);

perimeter = 3 \* a;

printf("Perimeter of equilateral triangle is: %.3f", perimeter);

*//Perimeter of right angled triangle*

printf(" **\n** Perimeter of right angled triangle **\n**");

printf("---------------------------**\n**");

printf("**\n** Enter the width and height of the right angled triangle : ");

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

perimeter = width + height + sqrt(width \* width + height \* height);

printf("Perimeter of right angled triangle is: %.3f", perimeter);

return 0;

}

**Program Explanation**

This C program is used to find the perimeter of a circle, rectangle and triangle. We are reading the value for ‘width’ and ‘length’ variables respectively. Compute the perimeter of a rectangle. The following formula is used

Perimeter = 2\* (width + length).We are reading the values for ‘a’, ’b’, ‘c’ variables respectively. Compute the perimeter of the triangle, the following the formula is used.Perimeter = a + b + c. We are reading the value for ‘radius’ variable. Compute the perimeter of circle, the following formula is used Perimeter = 2 \* (22/7) \* radius.

We are reading the value for ‘a’ variable. Compute the perimeter of a equilateral triangle, the following formula is used. Perimeter = 3 \* a.

We are reading the values for ‘width’ and ‘height’ variables respectively. Compute the  
perimeter of Right angled triangle, the following formula is used - Perimeter = width + height + sqrt((width \* width) + (height \* height)).

**Program to Find Volume and Surface Area of Cuboid**

#include <stdio.h>

#include <math.h>

int main()

{

float width, length, height;

float surfacearea, volume, space\_diagonal;

printf("Enter value of width, length & height of the cuboids:**\n**");

scanf("%f%f%f", &width, &length, &height);

surfacearea = 2 \*(width \* length + length \* height +

height \* width);

volume = width \* length \* height;

space\_diagonal = sqrt(width \* width + length \* length +

height \* height);

printf("Surface area of cuboids is: %.3f", surfacearea);

printf("**\n** Volume of cuboids is : %.3f", volume);

printf("**\n** Space diagonal of cuboids is : %.3f", space\_diagonal);

return 0;

}

**Program Explanation**

In this C program, library function defined in <math.h> header file is used to compute mathematical functions. We are reading the ‘width’, ‘length’ and ‘height’ values of cuboids. To find the surface area and the volume, the following formulas are used.

# Program to Find Volume and Surface Area of Cylinder

#include <stdio.h>

#include <math.h>

int main()

{

float radius, height;

float surface\_area, volume;

printf("Enter value for radius and height of a cylinder : **\n**");

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

surface\_area = 2 \* (22 / 7) \* radius \* (radius + height);

volume = (22 / 7) \* radius \* radius \* height;

printf("Surface area of cylinder is: %.3f", surface\_area);

printf("**\n** Volume of cylinder is : %.3f", volume);

return 0;

}

**Program Explanation**

In this C program, library function defined in <math.h> header file is used to compute mathematical functions. We are reading the radius and height of a cylinder using ‘radius’ and ‘height’ variables respectively. To find the surface area and volume of a cylinder, the following formulas are used.  
Surface area = 2 \* (22 / 7) \* radius \* (radius + height)  
Volume = (22 / 7) \* radius \* radius \* height

# Program to Find Volume and Surface Area of Sphere

#include <stdio.h>

#include <math.h>

int main()

{

float radius;

float surface\_area, volume;

printf("Enter radius of the sphere : **\n**");

scanf("%f", &radius);

surface\_area = 4 \* (22/7) \* radius \* radius;

volume = (4.0/3) \* (22/7) \* radius \* radius \* radius;

printf("Surface area of sphere is: %.3f", surface\_area);

printf("**\n** Volume of sphere is : %.3f", volume);

return 0;

}

**Program Explanation -** In this C program, library function defined in <math.h> header file is used to compute mathematical functions. We are reading ‘radius’ of the sphere. To find the surface area and volume, the following formulas are used.

# Program to Find Volume and Surface Area of a Cube

#include <stdio.h>

#include <math.h>

void main()

{

float side, surfacearea, volume;

printf("Enter the length of a side **\n**");

scanf("%f", &side);

surfacearea = 6.0 \* side \* side;

volume = pow(side, 3);

printf("Surface area = %6.2f and Volume = %6.2f **\n**", surfacearea,

volume);

}

**Program Explanation**

In this C program, library function is used in header file to compute mathematical functions. We are entering the length of a side using side variable. Now to find the surface area of a cube the formula, surface area = 6 \*(side \* side) is used. Then, to find the volume of a cube the formula, volume = pow(side,3) is used. Here, the program uses power function defined in math library. Finally, the surface area and volume will be displayed in the standard output.