

Problem 1

```
1  #include <stdio.h>
2  #include <stdbool.h>
3
4  int n;
5  bool is_even(int num);
6
7  int main(void) {
8      printf("Enter a number: ");
9      scanf("%d", &n);
10     if(is_even(n))
11         printf("Your number is even.\n");
12     else
13         printf("Your number is odd\n");
14     return 0;
15 }
16
17 bool is_even(int num){
18     if(num % 2 == 0)
19         return true;
20
21     return false;
22 }
```

```
Enter an integer: 1
The number is odd.

-- program is finished running --

Enter an integer: 10
The number is even.

-- program is finished running --

Enter an integer: 2000
The number is even.

-- program is finished running --
```

```
Enter an integer: 15
The number is odd.

-- program is finished running --

Enter an integer: 20
The number is even.

-- program is finished running --

Enter an integer: 601
The number is odd.
```

Problem 2

```
1  #include <stdio.h>
2
3  int sum_of_squares(int arr[10], int counter);
4
5  int main(void) {
6      int n[10];
7      for(int i = 0; i < 10; i++)
8          scanf("%d", &n[i]);
9
10     printf(" = %d", sum_of_squares(n, 0));
11
12     return 0;
13 }
14
15 int sum_of_squares(int arr[10], int counter){
16     if(counter == 10)
17         return 0;
18     else{
19         printf("%d^2", arr[counter]);
20         if(counter != 9)
21             printf("+");
22
23         return (arr[counter] * arr[counter]) + sum_of_squares(arr, ++counter);
24     }
25 }
```

```
1
2
3
4
5
6
7
8
9
10
1^2+2^2+3^2+4^2+5^2+6^2+7^2+8^2+9^2+10^2=385
-- program is finished running --
```

```
45
56
12
12
45
46
456
78
98
10
45^2+56^2+12^2+12^2+45^2+46^2+456^2+78^2+98^2+10^2=233314
-- program is finished running --
```

```
11
12
13
14
15
16
17
18
19
20
Sum of squares = 11^2+12^2+13^2+14^2+15^2+16^2+17^2+18^2+19^2+20^2=2485
-- program is finished running --
```

Problem 3

```
1  #include <stdio.h>
2
3  int type;
4  void circle();
5  void triangle();
6  void square();
7  float pi = 3.14159265359;
8
9  int main(void) {
10     printf("Circle - 1, Triangle - 2, Square - 3\n");
11     printf("Enter 1/2/3: ");
12     scanf("%d", &type);
13
14     if(type == 1)
15         circle();
16     else if(type == 2)
17         triangle();
18     else if(type == 3)
19         square();
20
21     return 0;
22 }
23
24 void circle(){
25     float radius, cir, area;
26
27     printf("Enter radius: ");
28     scanf("%f", &radius);
29     cir = 2 * pi * radius;
30     area = pi * radius * radius;
31     printf("The circumference of the circle with radius = %.2f meters is %.2f meters.\n", radius, cir);
32     printf("The area of the circle with radius = %.2f meters is %.2f square meters.\n", radius, area);
33 }
34
35 void triangle(){
36     float side, perimeter, area;
37
38     printf("Enter size of side: ");
39     scanf("%f", &side);
40     perimeter = side * 3;
41     area = (1.73205080757 / 4) * (side * side);
42     printf("The perimeter of the triangle with side = %.2f meters is %.2f meters.\n", side, perimeter);
43     printf("The area of the triangle with side = %.2f meters is %.2f square meters.\n", side, area);
44 }
45
46 void square(){
47     float side, perimeter, area;
48
49     printf("Enter size of side: ");
50     scanf("%f", &side);
51     perimeter = side * 4;
52     area = side * side;
53     printf("The perimeter of the square with side = %.2f meters is %.2f meters.\n", side, perimeter);
54     printf("The area of the square with side = %.2f meters is %.2f square meters.\n", side, area);
55 }
```

```
(1) Cricle | (2) Triangle | (3) Square
Enter a float value: 5.6
Enter an option: 1
The circumference of the circle with radius = 5.6 meters is 35.185837 meters.
The area of the circle with radius = 5.6 meters is 98.52034 square meters.

-- program is finished running --
```

```
(1) Cricle | (2) Triangle | (3) Square
Enter a float value: 10.34
Enter an option: 2
The perimeter of the triangle with side = 10.34 meters is 31.02 meters.
The area of the triangle with side = 10.34 meters is 46.295815 square meters.
The perimeter of the square with side = 10.34 meters is 41.36 meters.
The area of the square with side = 10.34 meters is 106.9156 square meters.
```

```
(1) Cricle | (2) Triangle | (3) Square
Enter a float value: 10.34
Enter an option: 3
The perimeter of the square with side = 10.34 meters is 41.36 meters.
The area of the square with side = 10.34 meters is 106.9156 square meters.

-- program is finished running --
```