**1) WAP to add 2 numbers using add function without passing any parameter and the function is not going to return any data**

```
#include<stdio.h>
void add_num(void);
int main(){
    add_num();
    return 0;
}

void add_num(){
    int a = 10, b =20, sum =0;
    sum = a + b;
    printf("sum = %d",sum);
}
```

**2) WAP to add 2 numbers using add function with passing parameters and the function is going to return the sum**

```
#include<stdio.h>
int add_num(int , int );

int main(){
    int a = 10, b =20;
    int sum = 0;
    sum = add_num(a,b);
    printf("sum = %d\n",sum);
    return 0;
}

int add_num( int a, int b){

    int sum = a + b;
    return sum;
}
```

**3) WAP that defines a function to increment an integer by 1. The function should demonstrate call by value ,showing that the original value remains unchanged**

```
#include <stdio.h>

void increment(int a) {
    a = a + 1;
    printf("Inside increment function: original value(a) = %d\n", a);
}
```

```
int main() {
    int a = 10;

    printf("Before calling increment function: originalValue(a) = %d\n", a);
    increment(a);
    printf("After calling increment function: originalValue(a) = %d\n", a);

    return 0;
}
```

**4)WAP to swap 2 integers using a function that employs call by value.Show that the original values remains unchanged after the function call.**

```
#include <stdio.h>

void swap(int a, int b) {
    int temp = a;
    a = b;
    b = temp;
    printf("Inside swap function: a = %d, b = %d\n", a, b);
}

int main() {
    int a = 10;
    int b = 20;

    printf("Before calling swap function: a = %d, b = %d\n", a, b);
    swap(a, b);
    printf("After calling swap function: a = %d, b = %d\n", a, b);

    return 0;
}
```

**5)WAP to calculate factorial of a number using call by value**

```
#include <stdio.h>

int factorial(int a) {
    int result = 1;
    for (int i = 1; i <= a; i++) {
        result *= i;
    }
    return result;
}

int main() {
    int a;

    printf("Enter a : ");
    scanf("%d", &a);

    int fact = factorial(a);

    printf("Factorial of %d is %d\n", a, fact);

    return 0;
}
```

**6)WAP to find maximum of 2 numbers using call by value**

```
#include <stdio.h>

int findMax(int a, int b) {
    if (a > b) {
        return a;
    } else {
        return b;
    }
}

int main() {
    int num1, num2;

    printf("Enter two numbers: ");
    scanf("%d %d", &num1, &num2);

    int max = findMax(num1, num2);

    printf("The maximum of %d and %d is %d\n", num1, num2, max);

    return 0;
}
```

**7)Problem Statement 1: Arithmetic Operations Calculator**

**Description: Write a C program that performs basic arithmetic operations (addition, subtraction, multiplication, and division) on two numbers provided by the user. The program should use functions to perform each operation and demonstrate call by value.**

**Requirements:**
**Create separate functions for addition, subtraction, multiplication, and division.**
**Each function should take two parameters (the numbers) and return the result.**
**Use appropriate data types for the variables.**
**Use operators for arithmetic calculations.**

**Example Input/Output:**

```
Enter first number: 10
Enter second number: 5
Addition: 15
Subtraction: 5
Multiplication: 50
Division: 2.0
```

```
#include <stdio.h>

float add(float a, float b) {
    return a + b;
}

float subtract(float a, float b) {
    return a - b;
}

float multiply(float a, float b) {
    return a * b;
}

float divide(float a, float b) {
    if (b != 0) {
        return a / b;
    } else {
        printf("Error: Division by zero.\n");
        return 0;
    }
}

int main() {
    float num1, num2;

    printf("Enter first number: ");
    scanf("%f", &num1);
    printf("Enter second number: ");
    scanf("%f", &num2);

    printf("Addition: %.2f\n", add(num1, num2));
    printf("Subtraction: %.2f\n", subtract(num1, num2));
    printf("Multiplication: %.2f\n", multiply(num1, num2));
    printf("Division: %.2f\n", divide(num1, num2));

    return 0;
}
```

**8)Problem Statement 2: Temperature Conversion**

**Description: Develop a C program that converts temperatures between Celsius and Fahrenheit. The program should use functions to handle the conversions and demonstrate call by value.**

**Requirements:**
**Create two functions: one for converting Celsius to Fahrenheit and another for converting Fahrenheit to Celsius.**
**Each function should accept a temperature value as an argument and return the converted temperature.**
**Use appropriate data types for temperature values.**
**Use arithmetic operators to perform the conversion calculations.**

**Example Input/Output:**

**Enter temperature in Celsius: 25**
**Temperature in Fahrenheit: 77.0**

```
Enter temperature in Fahrenheit: 77
 Temperature in Celsius: 25.0
```

```c
#include <stdio.h>

float celsiusToFahrenheit(float celsius) {
   return (celsius * 9 / 5) + 32;
}

float fahrenheitToCelsius(float fahrenheit) {
   return (fahrenheit - 32) * 5 / 9;
}

int main() {
   float temperature;
   int choice;

   printf("Enter temperature in Celsius: ");
   scanf("%f", &temperature);
   float fahrenheit = celsiusToFahrenheit(temperature);
   printf("Temperature in Fahrenheit: %.1f\n", fahrenheit);

   printf("Enter temperature in Fahrenheit: ");
   scanf("%f", &temperature);
   float celsius = fahrenheitToCelsius(temperature);
   printf("Temperature in Celsius: %.1f\n", celsius);

   return 0;
}
```

**9)Problem Statement 2: Simple Interest Calculator**

**Description: Develop a C program that calculates simple interest based on user input for principal amount, rate of interest, and time period. The program should use a function to compute interest and demonstrate call by value.**

**Requirements:**
**Implement a function that takes three parameters (principal, rate, time) and returns the calculated simple interest.**

**Use appropriate data types for financial calculations (e.g., float or double).**

**Utilize arithmetic operators to compute simple interest using the formula**

**SI = P×R×T/100**

**Example Input/Output:**

```
Enter principal amount: 1000
 Enter rate of interest: 5
 Enter time period (in years): 3
 Simple Interest is: 150.0
```

```c
#include <stdio.h>

float calcSimpleInterest(float p, float r, float t) {
   return (p * r * t) / 100;
}

int main() {
   float p, r, time, interest;

   printf("Enter principal amount: ");
   scanf("%f", &p);

   printf("Enter rate of interest: ");
   scanf("%f", &r);

   printf("Enter time period (in years): ");
   scanf("%f", &time);

   interest = calcSimpleInterest(p, r, time);

   printf("Simple Interest is: %.1f\n", interest);

   return 0;
}
```

**10) WAP to understand about the pointers**

```c
#include <stdio.h>

int main()
{
   int a;
```

```
    int *p;
    p = &a;
    *p = 20;

    printf("a = %d \n",a);
    printf("Address of a  = %p \n",&a);
    printf("Address of *p = %p \n",&p);
    printf(" *p = %p \n",p);

    return 0;
}
```

**11) WAP to understand about null pointer**

```
#include <stdio.h>

int main()
{
    int number = 0;
    int *pnumber = NULL;

    number = 10;

    printf("number's address : %p\n",&number);
    printf("number's value : %d\n\n",number);

    pnumber = &number;

    printf("pnumber's address : %p\n",(void*)&pnumber);

    printf("pnumber's size : %zd bytes\n",sizeof(pnumber));

    printf("pnumber's value : %p\n",pnumber);

    printf("value pointed to : %d\n",*pnumber);

return 0;
}
```

**12) Write a C program that swaps the values of two integers using pointers**.

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

```
void swap(int *a, int *b) {
    int temp = *a;
    *a = *b;
    *b = temp;
}

int main() {
    int x, y;

    printf("Enter the first number (x): ");
    scanf("%d", &x);
    printf("Enter the second number (y): ");
    scanf("%d", &y);

    printf("\nBefore swapping: x = %d, y = %d\n", x, y);

    swap(&x, &y);

    printf("After swapping: x = %d, y = %d\n", x, y);

    return 0;
}
```

### 13) WAP for Finding the Cube of a Number Using Pass by Reference

```
#include <stdio.h>

void findCube(int *num) {
    *num = (*num) * (*num) * (*num);
}

int main() {
    int number;

    printf("Enter a number: ");
    scanf("%d", &number);

    printf("\nOriginal number: %d\n", number);

    findCube(&number);

    printf("Cube of the number: %d\n", number);

    return 0;
}
```

**14) WAP to calculate the simple interest with the help of a function and pass call by reference method.**

```
#include <stdio.h>

void calcSimpleInterest(float *p, float *r, float *time, float *interest)
{
   *interest = (*p *  *r *  *time) / 100;
}

int main() {
   float p, r, time, interest;

   printf("Enter the principal amount: ");
   scanf("%f", &p);
   printf("Enter the rate of interest: ");
   scanf("%f", &r);
   printf("Enter the time (in years): ");
   scanf("%f", &time);

   calcSimpleInterest(&p, &r, &time, &interest);

   printf("\nThe Simple Interest is: %.2f\n", interest);

   return 0;
}
```