Problem 1: Swap Two Numbers Using Pointers

Problem Statement:
Write a C++ program that swaps the values of two integers using pointers.

- The program should prompt the user to enter two integers.
- It should use a function that takes pointers as arguments to swap the values.
- Finally, the program should display the values before and after swapping.

Input Format:
Two integers entered by the user.

Output Format:
- The program should print the values of the two integers before swapping. - The program should print the values after swapping.

Example Input/Output:
Input:

```
Enter two numbers: 5 10
```

Output:

```
Before swap: x = 5, y = 10
After swap: x = 10, y = 5
```

Problem 2: Pointer Arithmetic

Problem Statement:
Write a C++ program to demonstrate pointer arithmetic using an integer array.

- The program should initialize an array of integers.
- A pointer should be used to traverse the array using pointer arithmetic (i.e., incrementing the pointer).
- The program should print the array elements using pointer dereferencing.

Input Format:
No user input is required; use a predefined array.

Output Format:
The program should print the array elements using a pointer.

Example Output:

```
Array elements using pointer arithmetic: 10 20 30 40 50
```

Problem 3: Dynamic Array Using Pointers

Problem Statement:
Write a C++ program to create an array dynamically using pointers.

- The program should first ask the user for the size of the array.
- It should then allocate memory dynamically using the `new` operator.
- The user should enter the elements of the array.
- The program should display the entered values.
- Finally, free the allocated memory using the `delete[]` operator.

Input Format:
- An integer `n` (size of the array).
- `n` integers representing the array elements.

Output Format:
The program should display the entered numbers.

Example Input/Output:
Input:

```
Enter array size: 3
Enter 3 elements: 4 8 12
```

Output:

```
You entered: 4 8 12
```