**1. Basic Array Input and Output**

**Question:**  
Write a Java program to read elements into a one-dimensional array and display them.

**Program:**

**Test Cases & Results:**

| **Test Case** | **Input** | **Expected Output** |
| --- | --- | --- |
| 1 | 5  1 2 3 4 5 | Array elements are: 1 2 3 4 5 |
| 2 | 3  10 0 -5 | Array elements are: 10 0 -5 |
| 3 | 1  99 | Array elements are: 99 |

**2. Sum and Average of Array Elements**

**Question:**  
Write a Java program to read an array and find the sum and average of its elements.

**Program:**

**Test Cases & Results:**

| **Test Case** | **Input** | **Expected Output** |
| --- | --- | --- |
| 1 | 4  10 20 30 40 | Sum = 100  Average = 25.0 |
| 2 | 5  -5 -10 5 10 0 | Sum = 0  Average = 0.0 |
| 3 | 3  7 7 7 | Sum = 21  Average = 7.0 |

**3. Find Largest and Smallest Element**

**Question:**  
Write a Java program to find the largest and smallest element in an array.

**Program:**

**Test Cases & Results:**

| **Test Case** | **Input** | **Expected Output** |
| --- | --- | --- |
| 1 | 5  12 45 2 19 33 | Max = 45  Min = 2 |
| 2 | 4  -10 -5 -3 -20 | Max = -3  Min = -20 |
| 3 | 6  100 100 100 100 100 100 | Max = 100  Min = 100 |

**4. Reverse an Array**

**Question:**  
Write a Java program to reverse the elements of an array.

**Program:**

**Test Cases & Results:**

| **Test Case** | **Input** | **Expected Output** |
| --- | --- | --- |
| 1 | 5  10 20 30 40 50 | Reversed array: 50 40 30 20 10 |
| 2 | 3  1 2 3 | Reversed array: 3 2 1 |
| 3 | 1  99 | Reversed array: 99 |

**5. Search an Element in Array**

**Question:**  
Write a Java program to search for an element in an array using linear search.

**Program:**

**Test Cases & Results:**

| **Test Case** | **Input** | **Expected Output** |
| --- | --- | --- |
| 1 | 5  3 8 1 9 79 | Element found at index: 3 |
| 2 | 4  1 2 3 410 | Element not found |
| 3 | 6  5 2 5 8 5 95 | Element found at index: 0 |

**6. 2D Array (Matrix Addition)**

**Question:**  
Write a Java program to add two matrices.

**Program:**

**Test Cases & Results:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | **Test Case** | **Input** | **Expected Output** | | --- | --- | --- | | 1 | 2 2  1 2  3 4  5 6  7 8 | 6 8  10 12 | | 2 | 3 3  1 0 0  0 1 0  0 0 1  1 1 1  1 1 1  1 1 1 | 2 1 1  1 2 1  1 1 2 | | 3 | 2 3  -1 -2 -3  -4 -5 -6  1 2 3  4 5 6 | 0 0 0  0 0 0 | |  |  |
|  |  |  |
|  |  |  |
|  |  |  |