### **1. Check if a Number is Positive, Negative, or Zero**

Write a Java program that checks whether a given integer is positive, negative, or zero.

**Test Case:**

* Input: 10  
  Output: "The number is positive."
* Input: -5  
  Output: "The number is negative."
* Input: 0  
  Output: "The number is zero."

### **2. Compare Two Numbers**

Write a Java program that compares two numbers and prints whether they are equal, or if one is greater than the other.

**Test Case:**

* Input: a = 10, b = 5  
  Output: "a is greater than b."
* Input: a = 7, b = 7  
  Output: "a and b are equal."

### **3. Check if a Number is Divisible by 5 and 11**

Write a Java program that checks whether a number is divisible by both 5 and 11.

**Test Case:**

* Input: 55  
  Output: "The number is divisible by both 5 and 11."
* Input: 45  
  Output: "The number is not divisible by both 5 and 11."

### **4. Check if a Character is a Vowel or Consonant**

Write a Java program to check if a given character is a vowel or consonant.

**Test Case:**

* Input: 'a'  
  Output: "a is a vowel."
* Input: 'b'  
  Output: "b is a consonant."

### **5. Check if a Year is a Leap Year**

Write a Java program to check if a given year is a leap year.

**Test Case:**

* Input: 2020  
  Output: "2020 is a leap year."
* Input: 2021  
  Output: "2021 is not a leap year."

### **6. Find the Largest of Two Numbers**

Write a Java program that takes two numbers and prints the largest one.

**Test Case:**

* Input: a = 12, b = 25  
  Output: "25 is the largest number."
* Input: a = -10, b = -20  
  Output: "-10 is the largest number."

### **7. Check if a Person is Eligible to Vote**

Write a Java program that checks if a person is eligible to vote based on their age (must be 18 or older).

**Test Case:**

* Input: age = 20  
  Output: "Eligible to vote."
* Input: age = 16  
  Output: "Not eligible to vote."

### **8. Check if a Number is Positive and Even**

Write a Java program that checks if a number is positive and even.

**Test Case:**

* Input: 4  
  Output: "The number is positive and even."
* Input: -2  
  Output: "The number is not positive."
* Input: 3  
  Output: "The number is positive but not even."

### **9. Convert Temperature from Celsius to Fahrenheit**

Write a Java program to convert temperature from Celsius to Fahrenheit using the formula:  
F = (C \* 9/5) + 32

**Test Case:**

* Input: C = 25  
  Output: "Fahrenheit: 77.0"
* Input: C = 0  
  Output: "Fahrenheit: 32.0"

### **10. Find the Absolute Value of a Number**

Write a Java program that calculates the absolute value of a given number without using Math.abs().

**Test Case:**

* Input: x = -8  
  Output: "Absolute value: 8"
* Input: x = 5  
  Output: "Absolute value: 5"

### **11. Check if a Number is Multiple of 3 or 7**

Write a Java program that checks if a given number is a multiple of 3 or 7.

**Test Case:**

* Input: 21  
  Output: "21 is a multiple of 3 and 7."
* Input: 9  
  Output: "9 is a multiple of 3."
* Input: 49  
  Output: "49 is a multiple of 7."
* Input: 5  
  Output: "5 is not a multiple of 3 or 7."

### **12. Check if a Character is Uppercase or Lowercase**

Write a Java program to check if a given character is uppercase or lowercase.

**Test Case:**

* Input: 'A'  
  Output: "A is uppercase."
* Input: 'g'  
  Output: "g is lowercase."

### **13. Check if a Number is Single, Double, or Triple-Digit**

Write a Java program to check if a number is a single-digit, double-digit, or triple-digit number.

**Test Case:**

* Input: 5  
  Output: "Single-digit number."
* Input: 45  
  Output: "Double-digit number."
* Input: 123  
  Output: "Triple-digit number."

### **14. Find the Maximum of Three Numbers**

Write a Java program to find the maximum of three numbers using conditional statements.

**Test Case:**

* Input: a = 10, b = 20, c = 15  
  Output: "20 is the largest number."
* Input: a = 7, b = 5, c = 12  
  Output: "12 is the largest number."

### **15. Check if Two Characters are Equal**

Write a Java program to check if two characters are equal, case-sensitive.

**Test Case:**

* Input: char1 = 'A', char2 = 'A'  
  Output: "Characters are equal."
* Input: char1 = 'a', char2 = 'A'  
  Output: "Characters are not equal."