```java
package Operators;
//Challenge: Demonstrate all arithmetic operators using two integers
public class Challenge1 {
	public static void main(String[] args) {
		int num1 = 5;
	int num2 = 3;
	System.out.println("num1 = " + num1);
	System.out.println("num2 = " + num2);
	System.out.println("Addition: " + (num1 + num2));
	System.out.println("Subtraction: " + (num1 - num2));
	System.out.println("Multiplication: " + (num1 * num2));
	System.out.println("Division: " + (num1 / num2));
	System.out.println("Modulus: " + (num1 % num2));
	}
}
```

```java
package Operators;
//Challenge: Use relational operators to compare ages.
public class Challenge2 {
	public static void main(String[] args) {
		int ageA = 10;
		int ageB = 20;
		System.out.println("A == B : " + (ageA == ageB));
	System.out.println("A != B : " + (ageA != ageB));
	System.out.println("A > B  : " + (ageA > ageB));
	System.out.println("A < B  : " + (ageA < ageB));
	System.out.println("A >= B : " + (ageA >= ageB));
	System.out.println("A <= B : " + (ageA <= ageB));
	}
}
```

```java
package Operators;
import java.util.Scanner;
//Challenge: Implement a basic calculator using switch and operators
public class Challenge3 {
	public static void main(String[] args) {
		Scanner sc = new Scanner(System.in);
	System.out.print("Enter first number: ");
	int num1 = sc.nextInt();
	System.out.print("Enter second number: ");
	int num2 = sc.nextInt();
	System.out.print("Enter an operator (+, -, *, /, %) to calculate: ");
	char operator = sc.next().charAt(0);
	switch (operator) {
	  case '+':
	    System.out.println("Result: " + (num1+num2));
	    break;
```

```
            case '-':
                System.out.println("Result: " + (num1-num2));
                break;
            case '*':
                System.out.println("Result: " + (num1*num2));
                break;
            case '/':
                System.out.println("Result: " + (num1/num2));
                break;
            case '%':
                System.out.println("Result: " + (num1%num2));
                break;
            default:
                System.out.println("Invalid operator");
        }
        sc.close();
            }
}
```

```
package Operators;
//Challenge: Use bitwise AND, OR, XOR on two binary values
public class Challenge4 {
        public static void main(String[] args) {
                int a = 0b0011;
                int b = 0b0101;

                System.out.println("a & b = "+ (a&b));
        System.out.println("a | b = "+ (a|b));
        System.out.println("a ^ b = "+ (a^b));

        }
}
```

```
package Operators;
public class Challenge5 {
        public static void main(String[] args) {
                boolean t = true;
                boolean f = false;

                System.out.println("t&&f = " + (t&&f));
                System.out.println("t||f = " + (t||f));
                System.out.println("!t = " + (!t));
                System.out.println("!f = " + (!f));
        }
}
```