```
// Parent class demonstrating Method Overloading and serving as the base for Overriding
class Calculator {

    // 1. METHOD OVERLOADING: Same name, two int parameters
    public int add(int a, int b) {
        return a + b;
    }

    // 2. METHOD OVERLOADING: Same name, three int parameters
    public int add(int a, int b, int c) {
        return a + b + c;
    }

    // 3. METHOD OVERLOADING: Same name, two double parameters
    public double add(double a, double b) {
        return a + b;
    }

    // Method to be overridden by the child class
```

```
    public void displayFeatures() {
        System.out.println("Standard Calculator: Performs basic arithmetic operations.");
    }
}

// Child class inheriting from Calculator to demonstrate Method Overriding
class AdvancedCalculator extends Calculator {

    // METHOD OVERRIDING: Same name, same parameters, redefined behavior
    @Override
    public void displayFeatures() {
        System.out.println("Advanced Calculator: Performs arithmetic, algebra, and physics equations.");
    }
}

// Main class to run and test both behaviors
public class PolymorphismDemo {
    public static void main(String[] args) {
        // --- Testing Method Overloading ---
```

```
        Calculator basicCalc = new Calculator();
        System.out.println("--- Testing Method Overloading ---");

    // Resolves to the 2-integer add method at compile-time
        System.out.println("Sum of 2 ints: " + basicCalc.add(10, 20));

        // Resolves to the 3-integer add method at compile-time
        System.out.println("Sum of 3 ints: " + basicCalc.add(10, 20, 30));

    // Resolves to the 2-double add method at compile-time
        System.out.println("Sum of 2 doubles: " + basicCalc.add(5.5, 4.5));

        // --- Testing Method Overriding ---
        System.out.println("\n--- Testing Method Overriding ---");

        // Calls the parent class version
        Calculator standardCalc = new Calculator();
        standardCalc.displayFeatures();
```

```
        // Calls the overridden child class version
        Calculator advCalc = new AdvancedCalculator();
        advCalc.displayFeatures();
    }
}
```