

Operators & expressions

Java Reference

Arithmetic & assignment

Java arithmetic 算术 uses + - * / and % (remainder). With two ints, / is integer division 整数除法—it drops the decimal. +=, -=, and ++ are shortcuts.

```
public class Main {
    public static void main(String[] args) {
        int a = 7, b = 2;
        System.out.println(a / b);    // 3 (integer division)
        System.out.println(a % b);    // 1
        double x = 7.0 / 2;           // 3.5 (one side is double)
        System.out.println(x);
    }
}
```

Using objects: String, Math, wrappers

Some values are objects 对象 with methods. String has .length(), .substring(), .toUpperCase(). Math has Math.max, Math.sqrt, Math.pow. Wrapper classes 包装类 (Integer, Double) wrap a primitive —e.g. Integer.parseInt("42").

```
public class Main {
    public static void main(String[] args) {
        String s = "Hello";
        System.out.println(s.length());           // 5
        System.out.println(s.toUpperCase());      // HELLO
        System.out.println(Math.max(3, 9));       // 9
        System.out.println(Integer.parseInt("42") + 1); // 43
    }
}
```

Casting & type conversion

A cast 强制转换 changes a value's type. (int) drops the decimal; (double) avoids integer division when you need an exact result.

```
public class Main {
    public static void main(String[] args) {
        double pi = 3.99;
        System.out.println((int) pi);             // 3
        int total = 7, n = 2;
        System.out.println((double) total / n);  // 3.5
    }
}
```

}