

2 Making decisions - if and boolean – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
boolean	布尔	_____

Recall

Programs have to make decisions:

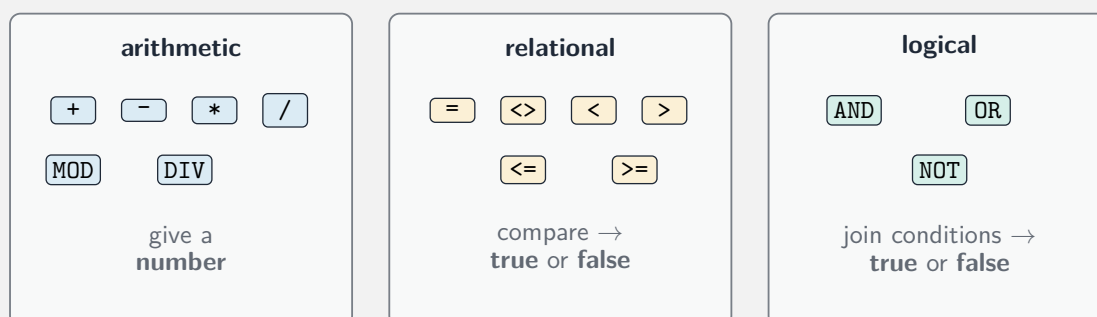
- "If it is raining, take an umbrella."
- A game checks if your score beats the high score.
- A test is either passed or failed – true or false.

This sheet lines up how programs decide. Each idea has a worked example.

New ideas

■ 1 Boolean values

A **boolean** 布尔 value is either **true** or **false**. Comparisons produce booleans:



== (equal), != (not equal), <, >, <=, >=.

Worked example. 5 > 3 is true; 4 == 5 is false.

■ 2 The if statement

An if statement runs code **only when** a condition is true:

```
if (score >= 50) {  
    System.out.println("Pass");  
}
```

■ 3 if / else

Add **else** to do something when the condition is false:

```
if (score >= 50) System.out.println("Pass");  
else             System.out.println("Fail");
```

■ 4 Combining conditions

- **&&** means **and** (both must be true),
- **||** means **or** (at least one is true),
- **!** means **not** (flips true and false).

Watch out: **==** compares two values, but a single **=** assigns a value. Writing **if (x = 5)** is a bug –use **if (x == 5)**.

Practice

Try these in order. The methods are all above.

2.1 State the two possible values of a boolean. [1]

2.2 Evaluate `7 > 4` and `3 == 4`. [2]

2.3 Evaluate `(5 > 3) && (2 > 4)`. [2]

2.4 A student has `score = 80`. State what `if (score >= 50)` prints given the if/else above. [1]

2.5 State the difference between `==` and `=`. [2]
