

2.8 for Loops

Name: _____ Class: _____ Date: _____ Total: 9 marks

KEY WORDS for loop 计数循环 • while loop 循环

Objective

Build the skills to answer exam questions on **for loops**.

You must be able to:

- write a **for loop** 计数循环 with an initialization, a condition, and an update
- understand how a for loop packs the setup, test, and change into one line
- rewrite a while loop as an equivalent for loop

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ for loop

```
for (int i = 0; i < 5; i++) {  
    System.out.print(i);    // prints 01234  
}
```

The header has three parts: **initialization** (int i = 0), **condition** (i < 5), and **update** (i++).

■ Equivalent while

The same logic could be written as a while loop; the for loop just gathers the setup, test, and change in one place.

2 Practice

2.1 Name the three parts of a for loop header. [2]

2.2 State how many times for (int i = 0; i < 5; i++) runs its body. [1]

2.3 State one advantage of a for loop over a while loop. [1]

3 Exam-style questions

3.1 The three parts of a for loop header are initialization, condition, and [1]

- A body
- B update
- C return
- D cast

3.2 for (int i = 1; i <= 3; i++) runs its body [1]

- A 2
- B 3
- C 4
- D infinitely many

times.

3.3 for (int k = 0; k < 4; k++) System.out.print(k);.

(a) State the output. [1]

(b) State how many times the body runs. [1]

(c) State the value of k that first stops the loop. [1]

Solutions

2.1 initialization, condition, update.

2.2 5 times.

2.3 it keeps the setup, test, and change together in one line.

3.1 B.

3.2 B.

3.3 (a) 0123. (b) 4 times. (c) `k = 4`.