

4.5 Implementing Array Algorithms

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

KEY WORDS array 数组

Objective

Build the skills to answer exam questions on **implementing array algorithms**.

You must be able to:

- find the **sum**, **average**, minimum, or maximum of an array
- **count** how many elements meet a condition
- determine whether an array **contains** a matching value

1 Worked examples

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

■ Sum and average

```
int sum = 0;
for (int x : a) sum += x;
double avg = (double) sum / a.length;
```

■ Minimum, maximum, and counting

Track a "best so far" variable for the min or max; use an **if** inside the loop to **count** elements that meet a condition, or to detect whether a value is present.

2 Practice

2.1 Describe how to find the sum of an array. [1]

2.2 For `int[] a = {2, 4, 6};`, find the sum and the average. [2]

2.3 State how to count the elements greater than 5. [1]

3 Exam-style questions

3.1 To find the maximum of an array, you [1]

- | | |
|---|---|
| A | B |
| C | D |
- A add all the elements
 - B track the largest value seen so far
 - C sort then divide
 - D count the elements

3.2 The average of {4, 8, 12} is [1]

- | | |
|---|---|
| A | B |
| C | D |
- A 8
 - B 24
 - C 4
 - D 12

3.3 `int[] a = {5, 10, 15, 20};`.

- (a) Find the sum. [1]
- (b) Find the average. [1]
- (c) Count the elements greater than 10. [1]