

4.11 2D Array Creation and Access

Name: _____ Class: _____ Date: _____

Total: 9 marks

KEY WORDS two-dimensional array 二维数组 • array 数组

Objective

Build the skills to answer exam questions on **2D array creation and access**.**You must be able to:**

- create a **two-dimensional array** 二维数组 arranged in rows and columns
- access an element using two indices, `grid[row][col]`, both from 0
- find the number of rows and columns

1 Worked examples

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

■ Creating and accessing

```
int[] [] grid = new int[3][4];    // 3 rows, 4 columns
grid[1][2] = 9;                  // row 1, column 2
```

Both indices start at 0.

■ Dimensions

- `grid.length` — the number of **rows**.
- `grid[0].length` — the number of **columns**.

2 Practice

2.1 State how to access the element in row 1, column 2 of `grid`. [1]

2.2 For `int[] [] g = new int[3][5];`, state the number of rows and columns. [2]

2.3 State how to find the number of rows of a 2D array `g`. [1]

3 Exam-style questions

3.1 A 2D array element is accessed with [1]

- | | |
|---|---|
| A | B |
| C | D |
- A `grid[row]`
 - B `grid[row][col]`
 - C `grid(row, col)`
 - D `grid.get(row)`

3.2 `grid.length` gives the number of [1]

- | | |
|---|---|
| A | B |
| C | D |
- A columns
 - B rows
 - C total elements
 - D bytes

3.3 `int[] [] g = new int[4][6];`.

- (a) State the number of rows. [1]
- (b) State the number of columns. [1]
- (c) State how to access the element in row 0, column 0. [1]