

3.8 Scope and Access

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

KEY WORDS local variable 局部变量 • instance variable 实例变量 • scope 作用域

Objective

Build the skills to answer exam questions on **scope and access**.

You must be able to:

- describe the **scope** 作用域 of a variable
- distinguish a **local variable** 局部变量 from an **instance variable** 实例变量
- understand that a local variable exists only while its method runs

1 Worked examples

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

■ Scope

The **scope** of a variable is the region of code where it can be used.

■ Local vs instance variables

- A **local variable** is declared inside a method and exists **only while that method runs**.
- An **instance variable** belongs to the object and lasts as long as the object exists.

2 Practice

2.1 Define the scope of a variable. [1]

2.2 State the difference between a local variable and an instance variable. [2]

2.3 State how long a local variable exists. [1]

3 Exam-style questions

3.1 The scope of a variable is [1]

- **A** its value
- **B** the region of code where it can be used
- **C** its type
- **D** its name

3.2 A local variable exists [1]

- **A** forever
- **B** only while its method runs
- **C** in every method
- **D** as a static variable

3.3 A variable is declared inside a method.

(a) Name this kind of variable. [1]

(b) State when it exists. [1]

(c) Name a variable that belongs to the object instead. [1]

Solutions

2.1 the region of code where the variable can be used.

2.2 a local variable is declared in a method and exists only while it runs; an instance variable belongs to the object and lasts as long as the object.

2.3 only while its method is running.

3.1 B.

3.2 B.

3.3 (a) a local variable. (b) only while the method runs. (c) an instance variable.