

Exercise walk-through

Scope and Access ■ 3.8

eXercise

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

Method — Scope

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

Method — 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.

Practice 2.1 ■ 1 mark

Define the scope of a variable.

Solution 2.1

Method: Scope

Worked steps

the region of code where the variable can be used **B1**.

Practice 2.2 ■ 2 marks

State the difference between a local variable and an instance variable.

Solution 2.2

Method: Local vs instance variables

Worked steps

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 **B1** **B1**.

Practice 2.3 ■ 1 mark

State how long a local variable exists.

Solution 2.3

Method: Local vs instance variables

Worked steps

only while its method is running **B1**.

Exam-style 3.1 ■ 1 mark

The scope of a variable is

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

Solution 3.1

Method: Scope

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

Worked steps

B.

Exam-style 3.2 ■ 1 mark

A local variable exists

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

Solution 3.2

Method: Local vs instance variables

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

Worked steps

B.

Exam-style 3.3 ■ 1 mark

A variable is declared inside a method.

- (a) Name this kind of variable.
- (b) State when it exists.
- (c) Name a variable that belongs to the object instead.

Solution 3.3

Method: Local vs instance variables

Worked steps

(a) a local variable **B1**. (b) only while the method runs **B1**. (c) an instance variable **B1**.