

Exercise walk-through

Methods: Passing and Returning References of an Object ■ 3.6

eXercise

You must be able to

- understand that object **references** 引用 are passed to and returned from methods
- explain that changing an object through a reference affects the **original** object
- distinguish passing a **primitive value** from passing an object reference

Method — Passing references

When an object is passed to a method, the method receives a **reference** to it — not a copy. So if the method **changes the object** through that reference, the **original** object changes too.

Method — Primitives vs references

A **primitive** (`int`, `double`, `boolean`) is passed **by value** — the method gets a copy, so changing the parameter does **not** affect the original.

Practice 2.1 ■ 1 mark

State what a method receives when an object is passed to it.

Solution 2.1

Method: Passing references

Worked steps

a reference to the object **B1**.

Practice 2.2 ■ 1 mark

State what happens if a method changes an object through its reference.

Solution 2.2

Method: Passing references

Worked steps

the original object is changed too **B1**.

Practice 2.3 ■ 2 marks

State the difference between passing a primitive and passing an object reference.

Solution 2.3

Method: Passing references

Worked steps

a primitive is passed by value (a copy), so changes do not affect the original; an object reference lets the method change the actual object **B1** **B1**.

Exam-style 3.1 ■ 1 mark

When an object is passed to a method, the method receives

A a full copy of the object

B a reference to the object

C nothing

D the class

Solution 3.1

Method: Passing references

A a full copy of the object

B a reference to the object



C nothing

D the class

Worked steps

B.

Exam-style 3.2 ■ 1 mark

Changing a primitive parameter inside a method

- A** changes the original value outside
- B** does not change the original value outside
- C** is illegal
- D** deletes the value

Solution 3.2

Method: Primitives vs references

- A changes the original value outside
- B does not change the original value outside** 
- C is illegal
- D deletes the value

Worked steps

B.

Exam-style 3.3 ■ 1 mark

A method sorts an array object passed to it.

- (a) State whether the original array is changed.
- (b) State what was passed to the method.
- (c) State whether an `int` passed the same way would change outside.

Solution 3.3

Method: Passing references

Worked steps

(a) yes **B1**. (b) a reference to the array **B1**. (c) no **B1**.