

Exercise walk-through

Objects: Instances of Classes ■ 1.12

eXercise

You must be able to

- understand that an **object** 对象 is a specific **instance** 实例 of a class
- explain that a **class** 类 is a blueprint defining state and behaviour
- distinguish the class (the type) from an object (a value of that type)
- describe an object's **attributes** 属性 and **methods** 方法

Method — Class and object

A **class** is a **blueprint** that defines the state and behaviour of its objects. An **object** is a specific **instance** created from that blueprint.

Method — Attributes and methods

An object's **attributes** are its data; its **methods** are the behaviours it can perform.

Method — Many objects

Many separate objects can be created from the same class — each has its own attribute values.

Practice 2.1 ■ 1 mark

State the relationship between a class and an object.

Solution 2.1

Method: Class and object

Worked steps

a class is a blueprint; an object is a specific instance created from it **B1**.

Practice 2.2 ■ 2 marks

State the difference between an attribute and a method.

Solution 2.2

Worked steps

an attribute is the object's data; a method is a behaviour the object can perform
B1 **B1**.

Practice 2.3 ■ 1 mark

State whether many objects can be created from one class.

Solution 2.3

Method: Many objects

Worked steps

yes **B1**.

Exam-style 3.1 ■ 1 mark

An object is

- A** a blueprint
- B** an instance of a class
- C** a primitive type
- D** a compiler

Solution 3.1

- A** a blueprint
- B** an instance of a class 
- C** a primitive type
- D** a compiler

Worked steps

B.

Exam-style 3.2 ■ 1 mark

A class defines an object's

- A** only its data
- B** only its methods
- C** its state and behaviour
- D** the hardware

Solution 3.2

Method: Class and object

- A only its data
- B only its methods
- C its state and behaviour 
- D the hardware

Worked steps

C.

Exam-style 3.3 ■ 1 mark

A Dog class is written.

- (a) State what a specific dog created from it is called.
- (b) Name an object's data.
- (c) Name an object's behaviours.

Solution 3.3

Method: Class and object

Worked steps

(a) an object (an instance) **B1**. (b) its attributes **B1**. (c) its methods **B1**.