

Exercise walk-through

Variables and Assignments ■ 3.1

eXercise

You must be able to

- explain how a **variable** 变量 is a named reference that stores a value
- use an **assignment** 赋值 statement to store or update a value
- describe how a variable can hold different **data types** 数据类型
- trace how a variable's value changes as a program runs

Method — Variable and assignment

A **variable** is a named box that holds a value in memory. An **assignment** (setting `x` to 5) stores or updates that value.

Method — Data types

A variable can hold a **number**, a **string** (text), or a **Boolean** (true/false).

Method — Tracing

Follow the value line by line: set x to 3, then set x to $x + 2$, and x is now 5.

Practice 2.1 ■ 1 mark

Define a variable.

Solution 2.1

Worked steps

a named reference that stores a value in memory **B1**.

Practice 2.2 ■ 2 marks

A program sets x to 4, then sets x to $x \times 3$. State the final value of x .

Solution 2.2

Worked steps

$$4 \times 3 = 12 \quad \text{M1} \quad \text{A1} .$$

Practice 2.3 ■ 1 mark

State one benefit of using descriptive variable names.

Solution 2.3

Worked steps

it makes the program easier to read and understand **B1**.

Exam-style 3.1 ■ 1 mark

An assignment statement is used to

- A** print output
- B** store a value in a variable
- C** repeat code
- D** define a function

Solution 3.1

- A print output
- B store a value in a variable**
- C repeat code
- D define a function



Worked steps

B.

Exam-style 3.2 ■ 1 mark

Which of these values is a Boolean?

A 42

B "hello"

C true

D 3.14

Solution 3.2

A 42

B "hello"

C true



D 3.14

Worked steps

C.

Exam-style 3.3 ■ 1 mark

A program runs: set a to 10; set b to $a + 5$; set a to 2.

- (a) State the final value of a.
- (b) State the final value of b.
- (c) State a good variable name for a value holding a student's age.

Solution 3.3

Worked steps

(a) 2 **B1**. (b) 15 (set before a changed) **B1**. (c) any clear name such as studentAge **B1**.