Exercise walk-through

Assignment Statements and Input ▪ 1.4

eXercise

You must be able to

- use the **assignment operator** 赋值运算符 = to store an expression's value
- understand that assignment **replaces** the old value of a variable
- trace how a variable's value changes across assignments
- read user **input** 输入 with a `Scanner`

Method — Assignment

`variable = expression;` evaluates the right side and stores it in the variable, **replacing** the old value. The left side must be the variable; the right side is the expression.

Method — Tracing

```
k+ktint+w nx+w o=+w l+m+mi4p;
nx+w o=+w nx+w o++w l+m+mi3p;+w   c+c1// x is now 7
```

Method — Input

A `Scanner` reads values typed by the user, e.g. `int n = sc.nextInt();`.

Practice 2.1 ▪ 1 mark

State what the assignment operator does.

Solution 2.1

Worked steps

it stores the value of the right-side expression in the left-side variable, replacing the old value B1.

Practice 2.2 ▪ 2 marks

Trace: `int y = 10; y = y * 2; y = y - 5;`. State the final value of `y`.

Solution 2.2

Worked steps

$10 \times 2 = 20$, then $20 - 5 = 15$ M1 A1.

Practice 2.3 ▪ 1 mark

Name the class commonly used to read user input.

Solution 2.3

Method: Input

Worked steps

`Scanner` B1.

Exam-style 3.1 ▪ 1 mark

After `int a = 3; a = 8;`, the value of `a` is

A `3`

B `8`

C `11`

D `5`

Solution 3.1

A 3

B 8 ✓

C 11

D 5

Worked steps

B.

Exam-style 3.2 ▪ 1 mark

In `x = y + 2;`, the left side is

A the expression

B the variable being assigned

C a method call

D program output

Solution 3.2

Method: Assignment

A the expression

B the variable being assigned ✓

C a method call

D program output

Worked steps

B.

Exam-style 3.3 ▪ 1 mark

Trace: `int n = 5; n = n + 1; n = n * 3;`.
(a) State the value of `n` after `n = n + 1`.
(b) State the value of `n` after `n = n * 3`.
(c) Name the class used to read input.

Solution 3.3

Worked steps

(a) 6 B1. (b) 18 B1. (c) `Scanner` B1.