

Exercise walk-through

Compound Assignment Operators ■ 1.6

eXercise

You must be able to

- use the **compound assignment operators** 复合赋值运算符 `+=`, `-=`, `*=`, `/=`, `%=`
- understand that `x += 3` is shorthand for `x = x + 3`
- use the **increment** 自增 (`++`) and **decrement** 自减 (`--`) operators
- trace a variable through a sequence of compound assignments

Method — Compound assignment

`x += 3` means `x = x + 3`; similarly `--`, `*`, `/`, `%` update a variable using its current value.

Method — Increment and decrement

`x++` adds 1 to `x`; `x--` subtracts 1.

Method — Example

```
k+ktint+w nx+w o+=w l+m+mi5p;  
nx+w o+o+=w l+m+mi2p;+w    c+c1// x is now 7
```

Practice 2.1 ■ 1 mark

State what `x += 3` is shorthand for.

Solution 2.1

Worked steps

$$x = x + 3 \text{ (B1).}$$

Practice 2.2 ■ 2 marks

Trace: `int x = 4; x *= 3; x -= 2;`. State the final value of `x`.

Solution 2.2

Worked steps

$4 \times 3 = 12$, then $12 - 2 = 10$ **M1** **A1**.

Practice 2.3 ■ 1 mark

State what `x++` does.

Solution 2.3

Worked steps

it increases x by 1 **B1**.

Exam-style 3.1 ■ 1 mark

`x -= 5` is shorthand for

A `x = 5`

B `x = x - 5`

C `x = x + 5`

D `x = -5`

Solution 3.1

A $x = 5$

B $x = x - 5$



C $x = x + 5$

D $x = -5$

Worked steps

B.

Exam-style 3.2 ■ 1 mark

After `int n = 7; n++;`, `n` is

A 6

B 7

C 8

D 1

Solution 3.2

A 6

B 7

C 8



D 1

Worked steps

C.

Exam-style 3.3 ■ 1 mark

Trace: `int a = 10; a /= 2; a++;`.

- (a) State the value of `a` after `a /= 2`.
- (b) State the value of `a` after `a++`.
- (c) Rewrite `a += 4` in full (without the compound operator).

Solution 3.3

Worked steps

(a) 5 **B1**. (b) 6 **B1**. (c) $a = a + 4$ **B1**.