

1.6 Compound Assignment Operators

Name: _____ Class: _____ Date: _____

Total: 9 marks

Objective

Build the skills to answer exam questions on **compound assignment operators**.

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

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Compound assignment

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

■ Increment and decrement

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

■ Example

```
int x = 5;
x += 2;    // x is now 7
```

2 Practice

2.1 State what `x += 3` is shorthand for. [1]

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

2.3 State what `x++` does.

[1]

3 Exam-style questions

3.1 `x -= 5` is shorthand for

[1]

- **A** `x = 5`
 - **B** `x = x - 5`
 - **C** `x = x + 5`
 - **D** `x = -5`
-

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

[1]

- **A** 6
 - **B** 7
 - **C** 8
 - **D** 1
-

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

(a) State the value of `a` after `a /= 2`.

[1]

(b) State the value of `a` after `a++`.

[1]

(c) Rewrite `a += 4` in full (without the compound operator).

[1]

4 Go further

- work through the **1.6 Compound Assignment Operators** lesson on the **Learn** page;
- read the **Primitive Types** section of the AP Computer Science A handout on the **Know** page.

Solutions

2.1 $x = x + 3$.

2.2 $4 \times 3 = 12$, then $12 - 2 = 10$.

2.3 it increases x by 1.

3.1 B.

3.2 C.

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