AP COMPUTER SCIENCE A • EXERCISE SHEET

2.2 Boolean Expressions

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

Build the skills to answer exam questions on **Boolean expressions**.

You must be able to:

- write a **Boolean expression** 布尔表达式 that evaluates to `true` or `false`
- use the **relational operators** 关系运算符 `<`, `<=`, `>`, `>=`, `==`, `!=`
- understand that `==` tests equality while `=` performs assignment

1 Worked examples

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

Boolean expressions

A Boolean expression evaluates to `true` or `false`, built with **relational operators**:

- `5 == 5` is `true` (equality)
- `3 != 4` is `true` (not equal)
- `7 >= 7` is `true`

== vs =

`==` **tests** equality; `=` **assigns** a value. Confusing them is a common bug.

2 Practice

2.1 State what a Boolean expression evaluates to. [1]

2.2 State the difference between `==` and `=`. [2]

2.3 Evaluate `7 >= 7`. [1]

3 Exam-style questions

3.1 Which operator tests equality? [1]

- **A** `=`
- **B** `==`
- **C** `!=`
- **D** `<=`

3.2 `4 != 4` evaluates to [1]

- **A** `true`
- **B** `false`
- **C** `4`
- **D** an error

3.3 Given `int x = 6, y = 9;`:

(a) evaluate `x < y`. [1]

(b) evaluate `x == y`. [1]

(c) evaluate `x != y`. [1]

4 Go further

- work through the **2.2 Boolean Expressions** lesson on the **Learn** page;
- read the **Boolean Expressions and if Statements** section of the AP Computer Science A handout on the **Know** page.

Solutions

2.1 either `true` or `false`.

2.2 `==` tests whether two values are equal; `=` assigns a value to a variable.

2.3 `true`.

3.1 B.

3.2 B.

3.3 (a) `true`. (b) `false`. (c) `true`.