AP COMPUTER SCIENCE A • EXERCISE SHEET

1.2 Variables and Data Types

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

Objective

Build the skills to answer exam questions on **variables and data types**.

You must be able to:

- understand that a **variable** 变量 is a named location in memory
- declare variables of the primitive types `int`, `double`, and `boolean`
- distinguish an integer from a **floating-point** 浮点 value
- use meaningful, valid **identifiers** 标识符

1 Worked examples

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

■ Variables and primitive types

A **variable** is a named memory location that stores a value. Each variable has a fixed **data type**:

- `int` —a whole number, e.g. `int age = 17;`
- `double` —a decimal (floating-point) number, e.g. `double price = 2.5;`
- `boolean` —`true` or `false`, e.g. `boolean done = false;`

■ Identifiers

Use clear, valid names (letters, digits, `_`; not starting with a digit), such as `studentCount`.

2 Practice

2.1 Name the three primitive types above. [2]

2.2 State which type stores a whole number. [1]

2.3 Write a declaration for a `double` variable named `price` holding `4.99`. [1]

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3 Exam-style questions

3.1 Which type stores `true` or `false`? [1]

- **A** `int`
- **B** `double`
- **C** `boolean`
- **D** `String`

3.2 A valid declaration of an integer is [1]

- **A** `int x = 3.5;`
- **B** `int x = 3;`
- **C** `double x = true;`
- **D** `int = 3;`

3.3 Consider `int count = 5;` and `double avg = 8.5;`.

(a) State the type of `count`. [1]

(b) State the type of `avg`. [1]

(c) State whether `boolean done = 1;` is valid. [1]

4 Go further

- work through the **1.2 Variables and Data Types** lesson on the **Learn** page;
- read the **Primitive Types** section of the AP Computer Science A handout on the **Know** page.

Solutions

2.1 `int`, `double`, `boolean`.

2.2 `int`.

2.3 `double price = 4.99;`.

3.1 **C**.

3.2 **B**.

3.3 (a) `int`. (b) `double`. (c) no —a `boolean` must be `true` or `false`.