

3.13 Developing Procedures

Name: _____ Class: _____ Date: _____

Total: 9 marks

Objective

Build the skills to answer exam questions on **developing procedures**.

You must be able to:

- **define** a procedure with a name, parameters, and body
- use **parameters** 参数 so a procedure works with different inputs
- apply **procedural abstraction** 过程抽象 to break a problem into parts
- explain how procedures reduce **duplication** 重复

1 Worked examples

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

■ Defining a procedure

Give it a **name**, a list of **parameters**, and a **body** of instructions.

■ Parameters

Parameters let one procedure work with **different input values** each time it is called.

■ Procedural abstraction

Breaking a large problem into smaller, well-named procedures reduces **duplication** and improves readability and reuse.

2 Practice

2.1 State the three parts of a procedure definition.

[2]

2.2 State the purpose of a parameter.

[1]

2.3 State one benefit of using procedures. [1]

3 Exam-style questions

3.1 Breaking a large problem into smaller procedures is [1]

- **A** iteration
 - **B** procedural abstraction
 - **C** compression
 - **D** an event
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3.2 A parameter lets a procedure [1]

- **A** run only once
 - **B** work with different input values
 - **C** never return anything
 - **D** store metadata
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3.3 A program repeats the same five lines in three different places.

(a) State how to avoid this duplication. [1]

(b) State one benefit of doing so. [1]

(c) Name the general idea involved. [1]

4 Go further

- work through the **3.13 Developing Procedures** lesson on the **Learn** page;
- read the **Algorithms and Programming** section of the AP Computer Science Principles handout on the **Know** page.

Solutions

2.1 a name, parameters, and a body.

2.2 to let the procedure work with different input values.

2.3 any one of: less duplication, easier reuse, better readability.

3.1 B.

3.2 B.

3.3 (a) put the lines in a procedure and call it in each place. (b) less duplication (or easier to maintain). (c) procedural abstraction.