

# 1.1 Change in Tandem

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

**Total: 9 marks**

**KEY WORDS** function 函数 • domain 定义域 • range 值域 • dependent variable 自变量与因变量  
• independent variable 自变量

## Objective

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Build the skills to answer exam questions on **functions and change in tandem**.

**You must be able to:**

- define a **function** 函数 as mapping each input to exactly one output
- identify the **domain** 定义域 and **range** 值域
- distinguish the **independent** and **dependent variable** 自变量与因变量

## 1 Worked examples

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

### ■ Functions

A **function** maps each input value to **exactly one** output value. The set of inputs is the **domain**; the set of outputs is the **range**.

### ■ Variables and the rule

The **independent variable** ( $x$ ) is the input; the **dependent variable** ( $y$ ) is the output. Input and output vary **in tandem** according to the **function rule**, which can be given graphically, numerically, analytically, or verbally.

## 2 Practice

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**2.1** Define a function. [1]

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**2.2** State the difference between the domain and the range. [2]

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**2.3** For  $f(x) = 2x + 1$ , find  $f(3)$ . [1]

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### 3 Exam-style questions

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**3.1** A function maps each input to [1]

|   |   |
|---|---|
| A | B |
| C | D |

**A** many outputs

**B** exactly one output

**C** no output

**D** two outputs

**3.2** The set of input values of a function is its [1]

|   |   |
|---|---|
| A | B |
| C | D |

**A** range

**B** domain

**C** rule

**D** graph

**3.3**  $f(x) = x^2$  for  $x$  in  $\{1, 2, 3\}$ .

(a) Find  $f(2)$ . [1]

(b) State the range. [1]

(c) Name the independent variable. [1]