

Exercise walk-through

Connecting Multiple Representations of Limits ■ 1.9

eXercise

You must be able to

- find a limit from a graph, a table, or algebra
- cross-check that the three representations agree

Method — Multiple representations

A limit can be found from a **graph** 图像, a **table** 表格, or **algebra** 代数 — and all three should give the same value. Cross-check when unsure.

Method — Example

If algebra gives $\lim = 5$, the table trend is $\rightarrow 5$, and the graph approaches 5, the limit is 5.

Practice 2.1 ■ 1 mark

Name three ways to find a limit.

Solution 2.1

Method: Multiple representations

Worked steps

from a graph, a table, or algebra **B1**.

Practice 2.2 ■ 1 mark

State what should be true across the representations.

Solution 2.2

Method: Multiple representations

Worked steps

they should all give the same value **B1**.

Practice 2.3 ■ 1 mark

If algebra gives 5 and the table trend is 5, state the limit.

Solution 2.3

Method: Example

Worked steps

5 **B1**.

Exam-style 3.1 ■ 1 mark

A limit can be represented by

- A** only a graph
- B** a graph, table, or algebra
- C** only algebra
- D** none of these

Solution 3.1

- A** only a graph
- B** a graph, table, or algebra 
- C** only algebra
- D** none of these

Worked steps

B.

Exam-style 3.2 ■ 1 mark

The three representations of a limit should

- A** conflict
- B** all agree
- C** give different values
- D** be ignored

Solution 3.2

Method: Multiple representations

A conflict

B all agree 

C give different values

D be ignored

Worked steps

B.

Exam-style 3.3 ■ 1 mark

For a function, algebra gives $\lim = 4$, the table trend is $\rightarrow 4$, and the graph approaches 4.

- (a) State the value from algebra.
- (b) State whether they agree.
- (c) State the limit.

Solution 3.3

Method: Example

Worked steps

(a) 4 **B1**. (b) yes **B1**. (c) 4 **B1**.