

Past-paper walk-through

Determining Limits Using Algebraic Properties of Limits ■ 1.5

eXercise

Questions in this set

- 2026 Q6

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 6

2026 ■ Q6

The function f is twice differentiable. The table gives values of f and its derivative f' at selected values of x .

x	0	2	3	6
$f(x)$	-1	3	8	5
$f'(x)$	-5	4	9	-2

Question 6

- (a) Find $\lim_{x \rightarrow 2} \frac{f(x)}{x}$, or state that the limit does not exist.
- (b) Let $g(x) = f(f(x))$. Find $g'(2)$. Show the work that leads to your answer.
- (c) Let h be a differentiable function such that $h(0) = 10$ and $h'(x) = f'(3x)$. Find $h(2)$. Show the work that leads to your answer.
- (d)(i) Let k be the function defined by $k(x) = \int_0^x t^2 f(t) dt$. Find $k'(x)$.
- (d)(ii) Find $k''(3)$. Show the work that leads to your answer.

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