Exercise 3

Paper 1 style · No calculator

3 5 marks SL 5.1 ●○○ Routine

Let $f(x) = \dfrac{2x^2 - 8}{x - 2}$, for $x \neq 2$.

(a) Show that $f(x) = 2x + 4$, for $x \neq 2$. **[2]**

(b) Hence write down $\lim_{x \to 2} f(x)$. **[1]**

(c) The graph of f is a straight line with one point missing. Write down the coordinates of this point. **[1]**

(d) Write down the gradient of the graph of f. **[1]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$2x^2 - 8 = 2(x^2 - 4) = 2(x - 2)(x + 2)$ **M1**

$\dfrac{2(x-2)(x+2)}{x-2} = 2(x+2) = 2x + 4$, for $x \neq 2$ **A1**

Total 2 marks

MARKSCHEME (b)

8 **A1**

Total 1 mark

MARKSCHEME (c)

$(2, 8)$ **A1**

Total 1 mark

Note FT from (b).

MARKSCHEME (d)

2 **A1**

Total 1 mark