Exercise 2

Paper 1 style · No calculator

2 6 marks SL 2.9 ●●○ Typical

Let $f(x) = \log_3(x-5)$, for $x > 5$.

(a) Write down the equation of the vertical asymptote of the graph of f. **[1]**

(b) Find $f(14)$. **[1]**

(c) Find the x-intercept of the graph of f. **[2]**

(d) Find $f^{-1}(x)$. **[2]**

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)

$x = 5$ **A1**

Total 1 mark

MARKSCHEME (b)

$\log_3 9 = 2$ **A1**

Total 1 mark

MARKSCHEME (c)

$x - 5 = 1$ **(M1)**

$x = 6$ **A1**

Total 2 marks

MARKSCHEME (d)

$3^x = y - 5$ **(M1)**

$f^{-1}(x) = 3^x + 5$ **A1**

Total 2 marks