Exercise 3

Paper 2 style · Graphic display calculator

3 5 marks SL 2.2 · 2.5 ●●○ Typical

Let $f(x) = x^3 + 3x$ and $g(x) = \ln(x + 2)$, for $x > -2$.

(a) Find $f^{-1}(6)$. **[2]**

(b) Find $(g \circ f)(0.8)$. **[2]**

(c) The point $(2, 14)$ lies on the graph of f. Write down the coordinates of the corresponding point on the graph of f^{-1}. **[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)

$x^3 + 3x = 6$ **(M1)**

$1.29 \ \ (1.28790\ldots)$ **A1**

Total 2 marks

MARKSCHEME (b)

$f(0.8) = 2.912$ **(A1)**

$\ln(4.912) = 1.59 \ \ (1.59169\ldots)$ **A1**

Total 2 marks

MARKSCHEME (c)

$(14, 2)$ **A1**

Total 1 mark