Exercise 2

Paper 1 style · No calculator

2 5 marks SL 2.2 ●●○ Typical

Let $f(x) = \dfrac{1}{\sqrt{x+4}}$.

(a) Find the largest possible domain of f. **[2]**

(b) Write down the range of f. **[1]**

(c) Solve the equation $f(x) = \dfrac{1}{3}$. **[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)

$x + 4 > 0$ **(M1)**

$x > -4$ **A1**

Total 2 marks

Note The square root must be defined *and* not zero: $x \geq -4$ earns M1A0.

MARKSCHEME (b)

$f(x) > 0$ **A1**

Total 1 mark

MARKSCHEME (c)

$\sqrt{x+4} = 3$ **(M1)**

$x = 5$ **A1**

Total 2 marks