Exercise 1

Paper 1 style · No calculator

1 6 marks SL 3.7 ●○○ Routine

Let $f(x) = 4\sin\left(\frac{x}{2}\right) + 2$, for $0 \leq x \leq 4\pi$.

(a) Write down the amplitude of f. **[1]**

(b) Find the period of f. **[1]**

(c) Write down the range of f. **[2]**

(d) Find the coordinates of the maximum point of the graph of f. **[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)

4 A1

Total 1 mark

MARKSCHEME (b)

$\frac{2\pi}{1/2} = 4\pi$ A1

Total 1 mark

MARKSCHEME (c)

$-2 \leq f(x) \leq 6$ A1A1

Total 2 marks

MARKSCHEME (d)

$\frac{x}{2} = \frac{\pi}{2},\ x = \pi$ A1

$(\pi,\ 6)$ A1

Total 2 marks