Marked example 2

Paper 1 style · No calculator

2 6 marks SL 2.2 ●●○ Typical

Let $f(x) = \sqrt{9 - x^2}$.

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

(b) Find the range of f. **[2]**

(c) Solve the equation $f(x) = \sqrt{5}$. **[2]**

MARKSCHEME (a)

$9 - x^2 \geq 0$ **(M1)**

$-3 \leq x \leq 3$ **A1**

Total 2 marks

MARKSCHEME (b)

$f(0) = 3$ and $f(\pm 3) = 0$ **(A1)**

$0 \leq f(x) \leq 3$ **A1**

Total 2 marks

Note The graph is a semicircle of radius 3. Award A0 for $-3 \leq f(x) \leq 3$.

MARKSCHEME (c)

$9 - x^2 = 5$ **(M1)**

$x = \pm 2$ **A1**

Total 2 marks

Note Both values are needed for the A1.

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