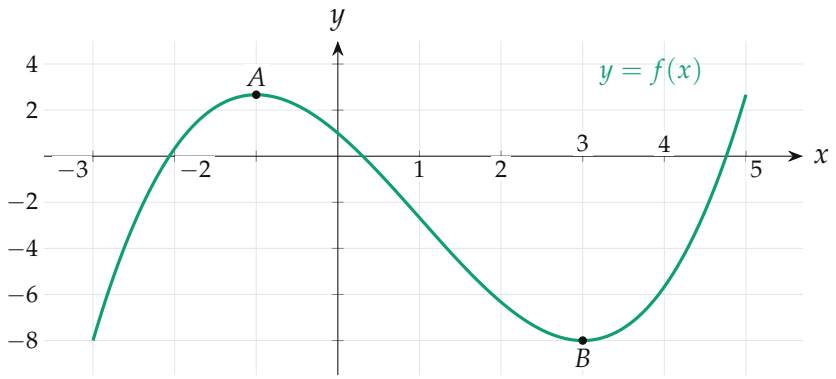
Marked example 2

Paper 1 style · No calculator

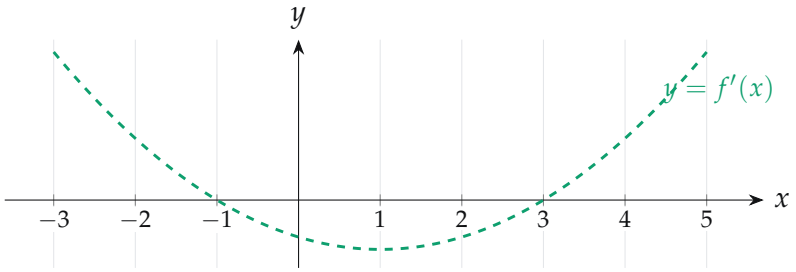
2 4 marks SL 5.7 ●●○ Typical

The following diagram shows the graph of a cubic function f, for $-3 \leq x \leq 5$. The graph has a local maximum point at $A(-1, \frac{8}{3})$ and a local minimum point at $B(3, -8)$.



(a) Write down the values of x for which $f'(x) = 0$. **[1]**

(b) On the axes below, sketch the graph of $y = f'(x)$ for $-3 \leq x \leq 5$. Show clearly where your graph meets the x-axis. **[3]**



MARKSCHEME (a)

$x = -1,\ x = 3$ **A1**

Total 1 mark

MARKSCHEME (b)

graph meets the x-axis at $x = -1$ and $x = 3$ **A1**

$f' > 0$ for $x < -1$ and for $x > 3$, $f' < 0$ for $-1 < x < 3$ **A1**

smooth U-shaped curve with a single minimum between $x = -1$ and $x = 3$ **A1**

Total 3 marks

Note The dashed curve on the axes above is $f'(x) = x^2 - 2x - 3$, shown for reference; its minimum is at $x = 1$, below the x-axis. Do not penalise the vertical scale or the exact position of the minimum.

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