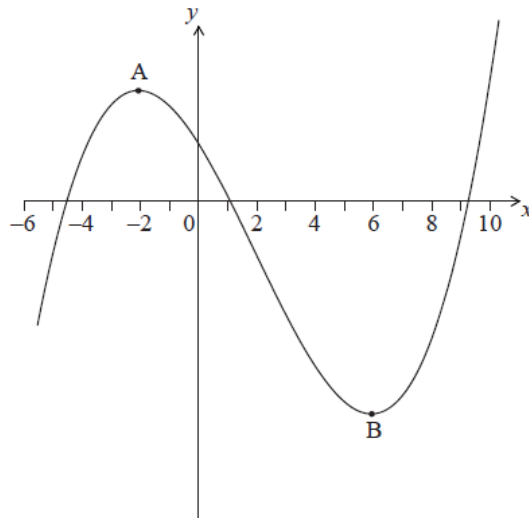


## 0226DN\_Function-graphs [17 marks]

The following diagram shows part of the graph of  $y = f(x)$ .



The graph has a local maximum at  $A$ , where  $x = -2$ , and a local minimum at  $B$ , where  $x = 6$ .

- 1a. On the following axes, sketch the graph of  $y = f'(x)$ .

[4 marks]

**Examiners report**

[N/A]

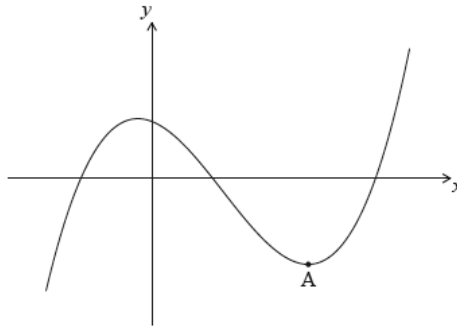
- 1b. Write down the following in order from least to greatest:  $f(0)$ ,  $f'(6)$ ,  $f''(-2)$ .

[2 marks]

**Examiners report**

[N/A]

The following diagram shows the graph of a function  $f$ . There is a local minimum point at  $A$ , where  $x > 0$ .



The derivative of  $f$  is given by  $f'(x) = 3x^2 - 8x - 3$ .

- 2a. Find the  $x$ -coordinate of  $A$ .

[5 marks]

## Examiners report

The majority of candidates approached part (a) correctly, and most recognized that only one solution was possible within the given domain.

- 2b. The  $y$ -intercept of the graph is at  $(0, 6)$ . Find an expression for  $f(x)$ .

[6 marks]

The graph of a function  $g$  is obtained by reflecting the graph of  $f$  in the  $y$ -axis, followed by a translation of  $\begin{pmatrix} m \\ n \end{pmatrix}$ .

Find the  $x$ -coordinate of the local minimum point on the graph of  $g$ .

## Examiners report

Nearly all candidates answered part (b) correctly, earning all the available marks for integrating the polynomial and solving for  $C$ .