

3 The function f is defined by $f(x) = x^3 - x^2 - 5x - 3$.

(a) Show that $(x - 3)$ is a factor of $f(x)$. [1]

(b) Factorise $f(x)$ completely. [2]

Three students attempted to draw the graph of $y = (x - a)(x - 1)(x + 1)$, each using a different value of the constant a . Not all of their graphs were correct. Their graphs are given in the diagrams below. Copies of the diagrams are provided in the Printed Answer Booklet.

(c) Underneath each diagram in the Printed Answer Booklet,
• **either** give the value of a for which this is the correct graph of $y = f(x)$,
• **or**, if there is no value of a for which this graph is correct, write “No value of a ”. [3]

Fig. 1.1

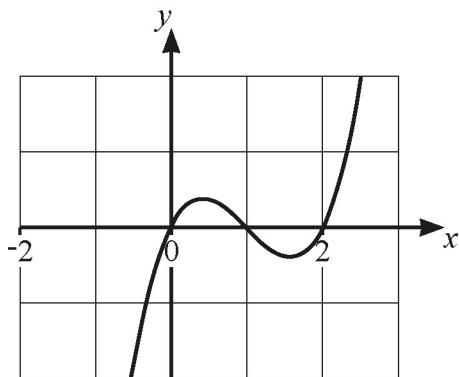


Fig. 1.2

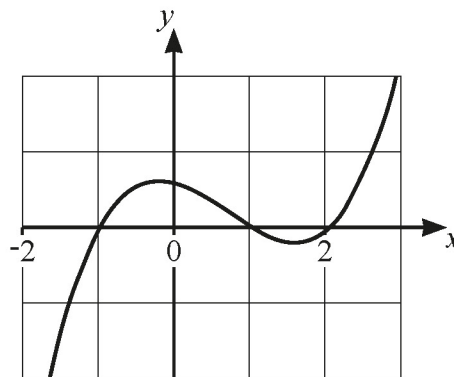


Fig. 1.3

