

- b. Find, to 2 decimal places, the other two solutions to the equation, $g(x) = 0$. (1)

Solutions

1.

Let $f(x) = x^3 + 2x^2 - 2x - 1$ Find $f(1)$	M1
$f(1) = 1 + 2 - 2 - 1 = 0$ Therefore, $(x - 1)$ is a factor.	M1

2.

Let $f(x) = 2 - 17x + 25x^2 - 6x^3$ Find $f(\frac{2}{3})$	M1
$f(\frac{2}{3}) = 2 - \frac{34}{3} + \frac{100}{9} - \frac{16}{9} = 0$ Therefore $(3x - 2)$ is a factor	M1

3a.

$g(-2) = 0,$ Therefore $(x + 2)$ is a factor of $g(x)$	M1
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> $\begin{array}{r} x^2 + 5x - 3 \\ x+2 \overline{) x^3 + 7x^2 + 7x - 6} \\ \underline{x^3 + 2x^2} \\ 5x^2 + 7x \\ \underline{5x^2 + 10x} \\ -3x - 6 \\ \underline{-3x - 6} \\ 0 \end{array}$ </div> <div style="flex: 1; padding-left: 20px;"> <p>Attempt to divide M1 Obtaining $x^2 + 5x - 3$ M1</p> </div> </div>	
Therefore, $g(x) = (x + 2)(x^2 + 5x - 3)$	M1

3b.

Other solutions given by, $x^2 + 5x - 3 = 0$ $x = -5.54, 0.54$	M1
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