

Question	Scheme	Marks	AOs
<b>3(a)</b>	$f(2) = 6(2)^3 - (2a+5)(2)^2 + 21(2) + a = 0$	M1	1.2
	$48 - 8a - 20 + 42 + a = 0 \Rightarrow a = 10 *$	A1*	2.4
		(2)	
<b>(b)</b>	At least two of $p = 6, q = -13, r = -5$ for $(x-2)(px^2 + qx + r) = 0$	M1	3.1a
	$6x^2 - 13x - 5$	A1	1.1b
	$(3x+1)(2x-5) = 0 \Rightarrow x = \dots$	M1	1.1b
	$x = -\frac{1}{3}, \frac{5}{2}, 2$	A1	2.2a
		(4)	
<b>(c)</b>	$x = \frac{1}{3}$	B1ft	2.2a
		(1)	

**(7 marks)**

### Notes

**(a)**

M1: Substitutes 2 into the expression for  $f(x)$  and sets equal to 0

A1\*: Rearranges to achieve the given answer with at least one intermediate stage of working seen.

**(b)**

M1: Uses  $(x-2)$  to find the quadratic factor  $px^2 + qx + r$ . Implied by at least two correct constants.

A1:  $6x^2 - 13x - 5$

M1: Attempts to solve their quadratic = 0 by factorising, completing the square or using the formula. It cannot be just from stating the values from a calculator.

A1:  $x = -\frac{1}{3}, \frac{5}{2}, 2$  or equivalent

**(c)**

B1ft:  $x = \frac{1}{3}$  or follow through their smallest value from (b)