Question number	Scheme	Marks
4 (a)	$f(2)=2\times2^3+a\times2^2+b\times2+18=0$ $f'(x)=6x^2+2ax+b \Rightarrow f'(2)=6\times2^2+2\times a\times2+b=5$ $4a+2b+34=0$ $4a+b+19=0$ $\Rightarrow b=-15,\ a=-1$	M1 M1M1 A1 M1A1 [6]
(b)	$x-2\overline{)2x^3-x^2-15x+18}$ $2x^2+3x-9$ $2x^2+3x-9=(x+3)(2x-3)$ $\Rightarrow (x-2)(x+3)(2x-3)$	M1 M1A1 [3]
(c)	$x=2,\ -3,\ \frac{3}{2}$	B2ft [2]
		Total 11 marks

(a)	
M1	$f(2)=0$ leading to an equation in a and b
M1	Attempt to differentiate
M1	$f'(2)=5$ leading to an equation in a and b
A1	$4a+2b+34=0$ and $4a+b+19=0$
M1	Solving simultaneously
A1	$b=-15,\ a=-1$
(b)	
M1	Dividing by $x-2$ to obtain a 3TQ
M1	Factorising the 3TQ
A1	All 3 terms correct
(c)	
B2 ft	$x=2,\ -3,\ \frac{3}{2}$ (**B1** for 2 correct)