Question	Scheme	Marks	AOs
5(i)	$3(x-2\sqrt{5})=x\sqrt{5} \Rightarrow 3x-x\sqrt{5}=6\sqrt{5} \Rightarrow x(\ldots\ldots)=6\sqrt{5}$	M1	1.1b
	$x\left(3-\sqrt{5}\right)=6\sqrt{5} \Rightarrow x=\dfrac{6\sqrt{5}}{3-\sqrt{5}}\times\dfrac{3+\sqrt{5}}{3+\sqrt{5}}=\ldots$	M1	1.1b
	$x=\dfrac{9\sqrt{5}+15}{2}$	A1	1.1b
		(3)	
(ii)	$\mathrm{e}^{4x-1}=5\mathrm{e}^{\frac{1}{2}x} \Rightarrow \mathrm{e}^{\frac{7}{2}x-1}=5 \quad \text{or} \quad 4x-1=\ln\left(5\mathrm{e}^{\frac{1}{2}x}\right)$	M1	1.1b
	$\dfrac{7}{2}x-1=\ln 5 \Rightarrow x=\ldots \quad \text{or} \quad 4x-1=\ln 5+\dfrac{1}{2}x \Rightarrow x=\ldots$	M1	1.1b
	$x=\dfrac{2}{7}\left(1+\ln 5\right)$	A1	1.1b
		(3)	
		(6 marks)	
Notes			

(i)

M1: Multiplies out the brackets, collects terms in x on one side and attempts to take out a factor of x

M1: Attempts to rationalise the denominator

A1: $x=\dfrac{9\sqrt{5}+15}{2}$ or simplified equivalent

(ii)

M1: Attempts to rearrange the equation to the form $\mathrm{e}^{\cdots}=A$ or alternatively takes lns of both sides

M1: Takes lns of both sides and proceeds to find an expression for x, or alternatively applies the laws of logs correctly and proceeds to find an expression for x

A1: $x=\dfrac{2}{7}\left(1+\ln 5\right)$ oe