Question	Scheme	Marks	AOs
9	$2\log_4(2-x)-\log_4(x+5)=1$		
	Uses the power law $\log_4(2-x)^2-\log_4(x+5)=1$	M1	1.1b
	Uses the subtraction law $\log_4\dfrac{(2-x)^2}{(x+5)}=1$	M1	1.1b
	$\dfrac{(2-x)^2}{(x+5)}=4\rightarrow 3\text{TQ in } x$	dM1	3.1a
	$x^2-8x-16=0$	A1	1.1b
	$(x-4)^2=32\Rightarrow x=$	M1	1.1b
	$x=4-4\sqrt{2}$ oe only	A1	2.3
		(6)	
			(6 marks)

Notes:

M1: Uses the power law of logs $2\log_4(2-x)=\log_4(2-x)^2$

M1: Uses the subtraction law of logs following the above $\log_4(2-x)^2-\log_4(x+5)=\log_4\dfrac{(2-x)^2}{(x+5)}$

Alternatively uses the addition law following use of $1=\log_4 4$ That is $1+\log_4(x+5)=\log_4 4(x+5)$

dM1: This can be awarded for the overall strategy leading to a 3TQ in x. It is dependent upon the correct use of both previous M's and for undoing the logs to reach a 3TQ equation in x

A1: For a correct equation in x

M1: For the correct method of solving their 3TQ =0

A1: $x=4-4\sqrt{2}$ or exact equivalent only. (For example accept $x=4-\sqrt{32}$)