

Question	Scheme	Marks	AOs
12	$\log_x 81 + \log_6 9 = \log_x 27 - \log_6 4$	M1	1.1b
	$\log_x 3 = -\log_6 36$	M1	1.1b
	$\log_x 3 = -2$	A1	1.1b
	$x^{-2} = 3 \Rightarrow x = \dots$	M1	2.1
	$x = \frac{\sqrt{3}}{3}$ oe	A1	1.1b
		(5)	

(5 marks)

Notes

Note: Candidates are told they should not use a calculator for this question, so all stages of working must be seen.

M1: Attempts to use the power rule on at least one of the terms

M1: Attempts to use the addition or subtraction laws of logarithms at least once

A1: Correct equation (may be implied)

M1: Removes the log correctly and finds a value for x

A1: $x = \frac{\sqrt{3}}{3}$ or $\frac{1}{\sqrt{3}}$ cso

Note: All previous M marks must have been scored, in particular the previous M mark cannot be implied i.e. an index equation, rather than a log equation, must be seen.