

Question			Answer	Marks	AO	Guidance	
9	(a)		$\log_{10} T = \log_{10} k + \log_{10} d^n$ $\log_{10} T = \log_{10} k + n \log_{10} d$	B1 [1]	2.1	Uses laws of logs to split into two terms and then to simplify the second term AG	This line must be seen
9	(b)		Gradient = 1.504 = n Intercept = $-8.215 = \log_{10} k$ So $k = 10^{-8.215} [= 6.095 \times 10^{-9}]$	B1 M1 A1 [3]	3.3 3.3 1.1	Allow $n = 1.5$ or better seen soi Allow awrt 6.1×10^{-9}	
9	(c)		For Thebe $d = 221900$ Model predicts $T = k \times d^{1.504} = 0.669$ This is close to the given value 0.6761 which suggests that the model is suitable	M1 A1FT	3.4 3.5b	Uses the model to predict Appropriate comment based on similarity of their correct value and the given value. FT their k	Do not accept a comment that implies the model should give an exact match
			Alternative method $-8.215 + 1.504 \log 22190 = -0.174 \dots$	M1		Uses the model to predict $\log T$	SC1 “Student equation would not be suitable as the data would have to be extrapolated” oe
			This is close to $\log 0.6761 = -0.169989 \dots$ which suggests that the model is suitable	A1		Appropriate comment based on similarity of their correct values.	
				[2]			