

Question 7 (Total 7 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
(a)	$V = Ae^{-kt}$	M1	This mark is given for suggesting a suitable exponential model for V in terms of t
	When $t = 0$ and $V = 13\,000$, $A = 13\,000$	M1	This mark is given for using the model to show the initial value for A is £13 000
	When $t = 1$ and $V = 5\,900$, $5\,900 = 13\,000e^{-1k}$ $k = -\ln 0.454 = 0.79$	M1	This mark is given for using the value of the caravan after one year to find a value for k
	$V = 13\,000e^{-0.79t}$	A1	This mark is given for finding a fully correct exponential model
(b)	When $t = 3$, $V = £1215$	M1	This mark is given for finding a value for V when $t = 3$
	This model is reliable since the value £1215 is close to £1100	A1	This mark is given for a valid statement comparing the two possible values of the caravan after 3 years
(c)	For example: The value of k should be increased A constant should be added	B1	This mark is given for a statement suggesting a valid adaptation