Question			Answer	Marks	AOs	Guidance	
3	(a)		The model is exponential so the rate of change of m is proportional to m In this case, the rate of change of m is $2m$	M1 E1 [2]	1.1 2.2a	Gradient of $e^{kx} = ke^{kx}$ In context	
3	(b)		The initial membership	B1 [1]	1.1		
3	(c)		$60000 = 150e^{2t}$ $\ln 400 = 2t$ $2.995 = t$ and hence 3	M1 A1 A1 [3]	3.4 1.1 1.1	Correct equation and use correct order of operations Obtain correct intermediate step Or $\ln 60000 = \ln 150 + 2t$ Obtain correct answer	
3	(d)		E.g. When the graph reaches 60 000 the graph becomes constant. [redacted]	B1 [1]	3.5c	Correct suggestion	