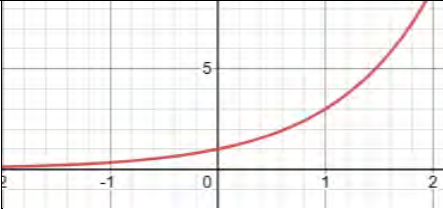


Question		Answer	Marks	AO	Guidance
15	(a)		B1 B1 [2]	1.1 1.1	correct shape in both quadrants; may touch, but not cut negative x-axis do not condone another asymptote drawn. unique intercept at (0,1) identified on graph or independently
15	(b)	$3^{2x} - 6 \times 3^x + 12 = 3^x$ $(3^x)^2 - 7(3^x) + 12 = 0$ $(3^x - 3)(3^x - 4) = 0$ $x = 1 \text{ and } x = \log_3 4 \text{ or } \frac{\log 4}{\log 3} \text{ or } \frac{\ln 4}{\ln 3} \text{ found}$ $(1, 3) \text{ and } (\log_3 4 \text{ oe}, 4)$	M1* M1 M1 A1 A1 [5]	3.1a 1.1 1.1 1.1 3.2a	Three term quadratic structure recognised; may be implied by later work. May see substitution FT solving their quadratic. May use formula or calculator. May be in terms of u or another variable. If M1M1M1A0A0 allow SCA1 for (1, 3) or ($\log_3 4$ oe, 4)