

Q	Marking instructions	AO	Marks	Typical solution
10	Obtains gradient of tangent $= \frac{1}{9}$	1.1b	B1	Gradient of tangent $= \frac{1}{9}$ Gradient of curve $= 3e^{3x}$ $3e^{3x} = \frac{1}{9}$ $e^{3x} = \frac{1}{27}$ $3x = \ln \frac{1}{27}$ $x = \ln \frac{1}{3}$
	Recalls gradient function $= 3e^{3x}$	1.2	B1	
	Equates their gradient function to their numerical tangent gradient	3.1a	M1	
	Uses natural log correctly with their equation of the form $ke^{3x} = m$ to obtain an equation without e	1.1a	M1	
	Obtains $x = \ln \frac{1}{3}$ ACF ISW Accept AWRT –1.1	1.1b	A1	
	Question 10 Total		5	