

Q	Marking instructions	AO	Marks	Typical solution
6(a)	Obtains 57 AFWW 56 to 57	3.3	B1	$16\ln 5 + 31 = 57$ years
Subtotal			1	

Q	Marking instructions	AO	Marks	Typical solution
6(b)	Uses exponential as inverse of logarithm PI by correct value of 'x' Condone use of $10^{\frac{9}{16}}$ for M1	1.1a	M1	$\ln x = \frac{40-31}{16}$ $x = e^{\frac{9}{16}}$ $x = 1.755$ $= 21 \text{ months}$
	Calculates the correct value of 'x', AFWW 1.75 to 1.76 Or FT 'x' = 3.65 from using $10^{\frac{9}{16}}$, AFWW 3.65 to 3.66	3.4	A1F	
	Obtains 21 months or 1 year 9 months Or FT Accept 3 years 8 months or 44 months	3.2a	A1F	
Subtotal			3	

Q	Marking instructions	AO	Marks	Typical solution
6(c)	States what happens to a logarithm for values approaching zero or gives appropriate example	3.5b	E1	As x approaches zero $\ln(x)$ becomes negative
	States the consequence for the dog's equivalent human age as the dog's age approaches zero	3.5a	E1	As the dog age approaches zero the equivalent human age can become negative
Subtotal			2	

Question 6 Total			6	
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