

Q	Marking Instructions	AO	Marks	Typical Solution
10(a)	Applies laws of logarithms to obtain one correct term	1.1a	M1	$\ln P = \ln a + \ln C^n$ $\ln P = \ln a + n \ln C$
	Obtains completely correct expression	1.1b	A1	
	Subtotal		2	
10(b)(i)	Calculates \ln values. Condone one slip. PI by any two correct points	1.1a	M1	$\ln C = -0.51, 0.140, 0.405$ $\ln P = 6.20, 7.09, 7.45$ <i>(See graph below)</i>
	Correctly plots three points. Line not required.	1.1b	A1	
	Subtotal		2	
10(b)(ii)	Infers significance of straight line	2.2b	E1	The three points lie on a straight line
	Subtotal		1	
10(b)(iii)	Identifies $\ln a$ as the intercept. PI	3.4	M1	$\ln a$ is the intercept value $\ln a = 6.9$ So $a = 992$ n is the gradient $= 1.37$
	Correctly calculates a AWFW 960 to 1040	1.1b	A1	
	Identifies n as the gradient. PI	3.4	M1	
	Obtains correct n value. AFWF 1.35 to 1.41	1.1b	A1	
	Subtotal		4	

10(c)	Explains significance of a	2.4	E1	a is the price for a 1 carat diamond
	Subtotal		1	
10(d)	Substitutes their values into P equation with $C = 2$ Or Uses the graph to read off a value for $\ln P$	3.4	M1	$992 \times 2^{1.37}$
	Calculates correct value of P for their values. AWWF 2440 to 2770 FT provided > 2000 and < 3000 must include units	3.2a	A1F	$= \text{£}2560$
	Subtotal		2	
	Question Total		12	