

Question	Scheme	Marks	AOs
11(a)(i)	$74 = ab^{10}, 198 = ab^{14} \Rightarrow \frac{198}{74} = b^4 \Rightarrow b = \sqrt[4]{\frac{198}{74}}$	M1	3.1a
	$b=1.279$	A1	1.1b
(a)(ii)	$74 = ab^{10} \Rightarrow a = \frac{74}{b^{10}} \quad \text{or} \quad 198 = ab^{14} \Rightarrow a = \frac{198}{b^{14}}$	dM1	3.4
	$a=6.3$	A1	1.1b
		(4)	
(b)(i)	a is the energy output in 1996	B1	3.4
(b)(ii)	b is the factor by which the energy output increases each year	B1	3.4
		(2)	
(c)	$E = 6.3 \times 1.279^{29} = \dots$	M1	3.4
	$= 7917.46\dots \quad (\text{GW})$	A1	1.1b
		(2)	
(8 marks)			
Notes			
<p>(a)(i) M1: Forms 2 equations in a and b and solves to obtain a value for b. A1: $b = 1.279$</p> <p>(a)(ii) dM1: Uses either equation and their value for b to find a value for a A1: $a = 6.3$</p> <p>(b)(i) B1: Correct interpretation for the constant a</p> <p>(b)(ii) B1: Correct interpretation for the constant b</p> <p>(c) M1: Uses their values of a and b with $t = 29$ in the equation for the model to obtain a value A1: Correct value. Allow values between awrt 7920 to awrt 7935 following correct work.</p>			