Question	Answer	Marks	Guidance
8(a)	$\lg y = b\lg x + \lg A$	**B1**	May be implied by subsequent work
	$4.37 = 5.36b + \lg A$ $0.57 = 0.61b + \lg A$	**M1**	For at least one correct equation
	$b = 0.8$	**A1**	
	$\lg A = k \quad (0.082)$ $A = 10^k$	**M1**	**Dep** for substitution to obtain $\lg A = k$ and hence A
	$A = 1.21$	**A1**	
	Alternative 1 $\lg y = b\lg x + \lg A$	**(B1)**	May be implied by subsequent work
	Gradient = $\dfrac{4.37 - 0.57}{5.36 - 0.61}$	**(M1)**	
	$b = 0.8$	**(A1)**	
	$\lg A = k \quad (0.082)$ $A = 10^k$	**(M1)**	**Dep** for substitution into a correct equation to obtain $\lg A = k$ and hence A
	$A = 1.21$	**(A1)**	
	Alternative 2 $10^{4.37} = A \times 10^{5.36b}$ or $10^{0.57} = A \times 10^{0.61b}$	**(B1)**	
	$3.8 = 4.75b$	**(M1)**	For eliminating A correctly Must have B1.
	$b = 0.8$	**(A1)**	
	$A = 10^{4.37 - (5.36 \times (their b))}$ oe	**(M1)**	For a correct attempt to find A. Must have B1
	$A = 1.21$	**(A1)**	
8(b)	$y = 1.21(3)^{0.8}$ or $\lg y = 0.8\lg 3 + 0.082$	**B1**	**FT** for substitution into *their* equation
	y = awrt 2.9	**B1**	
8(c)	$3 = 1.21x^{0.8}$ or $\lg 3 = 0.8\lg x + 0.082$	**B1**	**FT** for substitution into *their* equation
	x = awrt 3.1	**B1**	

Question	Answer	Marks	Guidance
9(a)	$d = 12$	**B1**	
	$\frac{n}{2}\left(-8+(n-1)12\right) > 2000$ $3n^2 - 5n - 1000 > 0$	**M1**	For use of sum formula to obtain a three term quadratic inequality or equation
	$n = \frac{5 \pm \sqrt{25+12000}}{6}$ $n = 19.1$	**M1**	**Dep** for attempt at critical value(s) using *their* quadratic, may be using a calculator, so may be implied by a correct answer of 20.
	$n = 20$	**A1**	
9(b)(i)	$r = 3$	**2**	**M1** For $ar^6 = 27$ and $ar^8 = 243$ with an attempt to eliminate a to obtain r^2. Allow other valid methods.
9(b)(ii)	3^{26}	**2**	**B1** for $a = \frac{1}{27}$ or 3^{-3} nfww
9(c)	Common ratio or $r = \sin\theta$	**B1**	May be implied by e.g. $\frac{1}{1-\sin\theta}$ or $\frac{1-\sin^n\theta}{1-\sin\theta}$
	$-1 < \sin\theta < 1$ or $\lvert\sin\theta\rvert < 1$ or $-1 < r < 1$ or $\lvert r\rvert < 1$ with no incorrect statements seen.	**B1**	**Dep** on previous B1
10(a)	$\frac{1}{\sin\alpha} + \frac{1}{\cos\alpha} \quad (=0)$	**B1**	For dealing correctly with $\text{cosec}^2\alpha$ and $\sec^2\alpha$ to obtain an expression in $\sin\alpha$ and $\cos\alpha$ only
	$\tan\alpha = -1$ or $\sin\alpha = -\cos\alpha$	**B1**	For an equation in $\tan\alpha$, may be implied by a correct solution.
	$\alpha = -\frac{\pi}{4}$ or -0.785 $\alpha = \frac{3\pi}{4}$ or 2.36	**2**	**B1** for one correct solution **B1** for a second correct solution and no extra solutions in the range.