Question	Answer	Marks	Guidance
5	$(1+x)\left(1+n\left(-\frac{x}{2}\right)+\frac{n(n-1)}{2}\left(\frac{x^2}{4}\right)...\right)$	**2**	**B1** For $\binom{n}{1}\left(-\frac{x}{2}\right)$ **B1** For $\binom{n}{2}\left(\frac{x^2}{4}\right)$
	$\frac{1}{4}\binom{n}{2}x^2-\frac{1}{2}\binom{n}{1}x^2=\frac{25}{4}x^2$	**M1**	Correctly using two terms in n to obtain an x^2 term and equating to $\frac{25}{4}x^2$ Dep on one B1
	$\frac{n(n-1)}{8}-\frac{n}{2}=\frac{25}{4}$ oe	**A1**	
	$n=10$ only	**A1**	
6(a)	$\lg y=\lg A+bx^2$	**B1**	Stated or may be implied by later work
	If using $\lg y=\lg A+bx^2$ as a starting point $5.25=\lg A+3.63b$ and $6.88=\lg A+4.83b$ or $5.25=\lg A+1.358(3.63)$ or $6.88=\lg A+1.358(4.83)$ OR If finding the equation of the straight line and then finding $\lg A$ and b by inspection $\lg y-6.88=1.358(x^2-4.83)$ or $\lg y-5.25=1.358(x^2-3.63)$ or $\lg y=1.358x^2+0.31..$(or 0.32..)	**M1**	For correctly finding required equation(s)
	$b=1.36$, $\frac{163}{120}$ or $1\frac{43}{120}$	**B1**	Must be b = and from correct working
	A in range 2.05 to 2.09	**A1**	
6(b)	$\lg y=0.3132+(4\times1.36)$ $y=2.09\times10^{4\times1.36}$	**M1**	For $\lg y=(their\ \lg A)+4(their\ b)$ or $y=(their\ A)(10^{4(their\ b)})$
	Allow 553 000 to 576 000	**A1**	
6 (c)	$4=2.09(10^{1.36x^2})$ or $\lg 4=0.3132+1.36x^2$	**M1**	$4=(their\ A)(10^{their\ bx^2})$ or $\lg 4=(their\ \lg A)+(their\ b)x^2$
	awrt 0.46	**A1**	

Question	Answer	Marks	Guidance
7(a)	$-4a+b+5=0$ oe	**B1**	Allow multiples of equation
	$a+b-25=0$ oe	**B1**	Allow multiples of equation
	$a=6,\ b=19$	**2**	**M1** for solving *their* 2 equations and obtaining two solutions **A1** for both $a=6,\ b=19$
	$(x+4)(6x^2-5x+1)$ $A=6,\ B=-5,\ C=1$	**2**	**M1** for attempt to obtain quadratic factor by inspection or by algebraic long division **A1** $(6x^2-5x+1)$ or $A=6,\ B=-5,\ C=1$
	Alternative $a+b-25=0$ oe	**(B1)**	Allow multiples of equation
	Comparing coefficients $C=1$ and $A=a$	**(B1)**	
	$4A+B=b$	**(B1)**	
	Leading to $5A+B=25$	**(M1)**	For use of *their* $a+b-25=0$ to obtain an equation in A and B
	$4B+1=-19$	**(B1)**	
	$(x+4)(6x^2-5x+1)$ $A=6,\ B=-5,\ C=1$	**(A1)**	
7(b)	$(x+4)(3x-1)(2x-1)$	**B1**	Must follow from a correct solution to **(a)**
7(c)	-19	**B1**	
8(a)	$\angle AOB=1.45$ (radians)	**B1**	
8(b)	Sector area $=\frac{1}{2}(r^2)(1.45)$	**B1**	For correct sector area. Allow unsimplified
	Area of triangle $=\frac{1}{2}\times 0.5r\times r\times\sin(\pi-$ *their* $1.45)$	**B1**	For correct area of triangle Allow unsimplified
	Total area = $0.973r^2$	**B1**	