Question	Answer	Marks	Guidance
9(c)	Common ratio = $\frac{4}{3}\cos^2 3\theta$	**B1**	Allow unsimplified. Must be convinced it is the common ratio not just writing the first term e.g. $r =$ or seeing $\frac{\frac{16}{9}\cos^4 3\theta}{\frac{4}{3}\cos^2 3\theta}$
	$\frac{4}{3}\cos^2 3\theta(*) - 1$ or $\frac{4}{3}\cos^2 3\theta(*)\ 1$ or oe soi $\frac{4}{3}\cos^2 3\theta(*)\ 0$	**B1**	
	$\cos 3\theta(*)\frac{\sqrt{3}}{2}$ or $\cos 3\theta(*) - \frac{\sqrt{3}}{2}$ or soi $\cos 3\theta(*)\ 0$	**B1**	
	$3\theta(*)\frac{5\pi}{6}$ **and** $3\theta(*)\frac{\pi}{6}$ soi	**B1**	Seeing $\frac{5\pi}{18}$ or $\frac{\pi}{18}$ implied the first 3 marks
	$\frac{\pi}{18} < \theta \leqslant \frac{5\pi}{18}$	**B1**	
10(a)	$\frac{dy}{dx} = 2\times 3(3x+1)\ln(3x+1) + \frac{3(3x+1)^2}{3x+1}$ Simplified to: $\frac{dy}{dx} = 3(3x+1)(1+2\ln(3x+1))$	**3**	**B1** for $\frac{3}{3x+1}$ **M1** for attempt to differentiate a product **A1** for all terms other than $\frac{3}{3x+1}$ correct. Allow unsimplified.
10(b)	$k(3x+1)^2\ln(3x+1)$ soi	**B1**	
	$\int(3x+1)dx = \frac{3x^2}{2} + x\ (+c)$	**B1**	May be a multiple May be seen as $\frac{1}{3}\times\frac{1}{2}\times(3x+1)^2$
	$\frac{1}{6}(3x+1)^2\ln(3x+1) - \frac{3x^2}{4} - \frac{x}{2} + c$	**B2**	**B1** for two correct algebraic terms For **B2** must have (+ c)