Question	Answer	Marks	Partial Marks
10(c)	$\overrightarrow{OE} = \frac{1}{1+\lambda}\begin{pmatrix}12\\7\end{pmatrix}$ oe seen	**B1**	
	Solves *their* $\frac{7}{1+\lambda} = 3$	**M1**	
	$\lambda = \frac{4}{3}$ oe	**A1**	
	Alternative $\overrightarrow{OE} = \begin{pmatrix}x\\3\end{pmatrix}$ $\frac{12}{7} = \frac{x}{3}$ $x = \frac{36}{7}$	**(B1)**	
	$\frac{1+\lambda}{1} = \frac{12}{36/7}$	**(M1)**	**FT** *their x*
	$\lambda = \frac{4}{3}$	**(A1)**	
11(a)(i)	$1 + d$, $1 + 7d$, $1 + 43d$ soi	**B1**	
	$[r =]$ *their* $\frac{1+7d}{1+d} =$ *their* $\frac{1+43d}{1+7d}$	**M2**	**FT** *their* ratios of terms provided in terms of a and d **M1 FT** for either $[r =] \frac{1+7d}{1+d}$ or $[r] = \frac{1+43d}{1+7d}$
	Simplifies to $6d^2 - 30d = 0$ oe nfww	**A1**	
	Verifies that $d = 5$ by substitution or factorises and solves to obtain $d = 5$ only	**A1**	

Question	Answer	Marks	Partial Marks
11(a)(i)	Alternative $1 + d$, $1 + 7d$, $1 + 43d$ soi	**B1**	
	$\left(\frac{7a-6}{a}\right)^2 = \frac{43a-42}{a}$ oe	**M2**	**M1** for $\frac{7a-6}{a}$ or for $\frac{43a-42}{a}$ oe
	$6a^2 - 42a + 36 = 0$ oe	**A1**	
	Finds $a = 6$ and uses it to show that $d = 5$ only	**A1**	
11(a)(ii)	$S_{20} = \frac{20}{2}\{2[1] + (20-1)(5)\}$	**M1**	
	970	**A1**	
11(b)(i)	7776 nfww	**B2**	**B1** for $6 \times 6^{5-1}$
11(b)(ii)	Valid explanation e.g. The sum to infinity does not exist for this GP as the common ratio is greater than 1.	**B1**	
12	x-coordinate of $A = 6$ soi	**B1**	
	x-coordinate of $B = 9$ soi	**B1**	
	$k - 3 = (9 - k)(k - 3)$	**M1**	
	$k = 8$ [therefore $C(8, 5)$]	**A1**	
	$(8-6)\times 5$ or 10 oe soi	**B1**	
	$\int_{their\,8}^{their\,9} (12x - 27 - x^2)\,dx$ $= \frac{12}{2}x^2 - 27x - \frac{x^3}{3}$	**M2**	**M1** for 2 correct terms
	*their*10 + F(*their* 9) – F(*their* 8)	**M1**	DEP on at least M1 for integration
	$\frac{38}{3}$ or $12\frac{2}{3}$ or 12.7 or 12.66[66...] rot to 4 or more figs nfww	**A1**	