Section A

Question	Correct answer	Mark	Part marks	
1 (a)	$\frac{8}{33}$	3	**M2**	$\frac{24}{99}$ or $24r = 99$ or
			M1	$100(r) = 24{\cdot}24(\ldots)$
(b)	$28 - 10\sqrt{3}$	2	**M1**	25 **and** ±3 or 28 or $10\sqrt{3}$ seen
2 (a)	$(x + 5)(2x - 1)$	2	**M1**	$(x \pm 5)(2x \pm 1)$
(b)	$\frac{x-5}{2x-1}$, ft if M1 in **(a)** and **(b)**	2	**M1**	$(x + 5)(x - 5)$ or $\frac{x-5}{2x-1}$ seen then spoilt
3 (a)	**Y7 slower o.e.**	1		e.g. Modal time for Y11 is smaller or **Comparison** of one group, etc.
	Y7 bigger range, o.e.	1		**Comparison** of spread
(b)	0·25 × 108 = 27 (b) **and** 0·25 × 92 =23 (g) o.e.	2	**M1** **or** **W1**	25% of boys/108 **and** 25% of girls/92, o.e. or 54% of 50 **and** 46% of 50. Stratified sample
4 (a)	$(x + 3)^2 - 15$	3	**M2**	$(x + 3)^2 + {}^{-}15$ or $(x + 3)^2 - 9 \pm k$ seen or $x^2 + 3x + 3x + 9 - 9$ or $(x - 3)^2 - 15$
			M1	$(x + 3)^2$ seen or ${}^{-}6 - a^2$ (a must be a constant and a^2 evaluated correctly
(b)	${}^{-}15$	1		f.t. **(a)** if of the form $(x + a)^2 + b$, $b \neq 0$
5 (a) (i)	Translation 2 squares left	1		(0,0) to (${}^{-}2$,0) (2,4) to (0,4) and (${}^{-}2$,4) to (${}^{-}4$,4)
(a) (ii)	Translation 3 squares down	1		(0,0) to (0,${}^{-}3$) (2,4) to (2,1) and (${}^{-}2$,4) to (${}^{-}2$,1)
(b)	Translation $\begin{pmatrix} -2 \\ -3 \end{pmatrix}$ o.e.	2	**W1**	Translation or $\begin{pmatrix} -2 \\ -3 \end{pmatrix}$
6 (a) (i)	**r – s** or **– s + r**	1		
(a) (ii)	$\frac{3}{4}$(**r – s**) oe	1		ft **(i)** involving **r** and **s**, must be a vector. Do not ignore incorrect subsequent working.
(b)	$\frac{1}{4}$(3**r** + **s**) or $\frac{3}{4}$**r** + $\frac{1}{4}$**s**	2	**M1**	via R: **r** + $\frac{1}{4}$(**s – r**) or ft **r** – $\frac{1}{4}$**(i)** via S: **s** + $\frac{3}{4}$(**r – s**) or ft **s** + **(ii)** or **s** + $\frac{3}{4}$**(i)**

Section B

Question	Correct answer	Mark	Part marks	
7 (a)	2000	1		
(b)	46596·…, 46597, 46600, 47000	2	**M1**	(×) $1{\cdot}3^{12}$ or 23·298
8	95° + correct calculation	4	**M2**	$(\sin B =) \dfrac{6{\cdot}05 \sin 28}{2{\cdot}85}$ or 0·99(65…) or
			M1	$\dfrac{\sin B}{6{\cdot}05} = \dfrac{\sin 28}{2{\cdot}85}$ o.e.
			A2	180 – (84·9 to 85·3) or
			A1	84·9 to 85·3
9	Ruled line of best fit drawn	1		Through origin (±2mm) & between (23·5,60) and (25·5,60)
	k = 2·35 – 2·55	1		Can award if no line
10	6·89(…) or 6·9	5	**M2**	Sector $\dfrac{78}{360} \times \pi 6^2$ seen or 24·5(…) seen M1 $\dfrac{78}{360}$
			M1	Triangle ½ × 6^2 sin78 or 17·6(…)
			M1	Their sector – their triangle
	cm^2	1		Indep
11 (a)	(371 + 257 + 296 + 324 + 412)/5	1		Accept a worded description of the 5 values to be added and their total divided by 5. eg Sat week 2 + Tues week 3 etc…
(b)	Audiences peak at the weekends	1		
(c)	Remain fairly steady or			
	Attendances fall off half way through	1		

Question	Correct answer	Mark	Part marks	
12	x = 5·7 or $^-$7·7	7	**M1**	$x^2 + (x + 2)^2$ = 93
	y = 7·7 or $^-$5·		**M1**	$x^2 + x^2 + 2x + 2x + 4$ = 93
			A1	$2x^2 + 4x - 89$ (= 0)
			M1	$\frac{-4 \pm \sqrt{4^2 - 4 \times 2 \times {}^-89}}{2 \times 2}$ ft their quadratic
			M1	$\frac{(-4 \pm 26{\cdot}98)}{4}$
			A1	x = 5·7 and $^-$7·7 from no wrong working
			A1	y = 7·7 and $^-$5·7 from no wrong working
	ALTERNATIVE			
	Completing the square		**M1**	(x =) $^-1 \pm \sqrt{\frac{91}{2}}$
			M1	(x =) $^-1 \pm 6{\cdot}74$
	Trial & Improvement		**W2**	**All four correct answers to 1dp**
			W1	One value of x and corresponding y value