Question			Answer	Marks	AO	Guidance	
11			Let $u=2x+k \quad 2\mathrm{d}x=\mathrm{d}u$	**M1**	**2.1**	Substituting $u=2x+k$ Allow for a different substitution giving an integral in u only	Allow for $\int \frac{a}{u^2}\mathrm{d}u$ for any constant seen
			$\int \frac{2}{(2x+k)^2}\mathrm{d}x=\int \frac{1}{u^2}\mathrm{d}u$	**A1**	**2.1**	Correct integrand in terms of u Ignore limits	
			$=-\frac{1}{u}[+c]$	**A1**	**2.1**	correct indefinite integral constant need not be seen	
			$\int_k^{2k} \frac{2}{(2x+k)^2}\mathrm{d}x=\int_{3k}^{5k}\left(\frac{1}{u^2}\right)\mathrm{d}u=-\frac{1}{5k}+\frac{1}{3k}$	**M1**	**2.1**	substituting correct new limits into their integrated expression, or substituting in terms of x and using original limits	
			Alternatively, by inspection $\int_k^{2k} \frac{2}{(2x+k)^2}\mathrm{d}x=\left[-(2x+k)^{-1}\right]_k^{2k}$	**M1**		Integrating by inspection to obtain any multiple of $(2x+k)^{-1}$	
				A2		Fully correct indefinite integral – need not be simplified.	
			$-\frac{1}{5k}+\frac{1}{3k}$	**M1**		substituting limits into their integrated expression	
			$=\frac{2}{15k}$	**A1**	**2.1**	Allow $\left(-\frac{1}{5}+\frac{1}{3}\right)\frac{1}{k}$ seen	
			This is inversely proportional to k [with constant of proportionality $\frac{2}{15}$]	**E1**	**2.2a**	FT their definite integral Must use phrase "inversely proportional" to k or indicates $\propto \frac{1}{k}$	Allow if $\frac{a}{k}$ required at the start of the argument
				[6]			