24	$\frac{n}{2}\left[2(84)+(n-1)(4)\right]$ or $\frac{n}{2}[168+4n-4]$ or $\frac{n}{2}[164+4n]$ oe or $82n+2n^2$ oe		6	M1 for correctly substituting into $S_n=\frac{n}{2}\left[2a+(n-1)d\right]$
	$\frac{n}{2}\left[2(84)+(n-1)(4)\right]=(n-2)\times180$ or $\frac{n}{2}[164+4n]=(n-2)\times180$ oe or $82n+2n^2=(n-2)\times180$ oe			M1 for equating S_n with $(n-2)180$ S_n must come from correct substitution of a and d into $\frac{n}{2}\left[2a+(n-1)d\right]$
	eg $n^2-49n+180(=0)$ oe Allow $n^2-49n=-180$			M1dep on M2 for multiplying out and collecting terms, forming a three term quadratic in any form of $an^2 + bn + c$ (= 0) where at least 2 coefficients (a or b or c) are correct
	eg $(n-45)(n-4)(=0)$ $n=\frac{--49\pm\sqrt{(-49)^2-4\times1\times180}}{2}$ e.g. $\left(n-\frac{49}{2}\right)^2-\left(\frac{49}{2}\right)^2=-180$			M1ft dep on M2 method to solve **their** 3 term quadratic using any correct method (allow one sign error and some simplification – allow as far as eg $\frac{49\pm\sqrt{2401-720}}{2}$ **or** if factorising allow brackets which expanded give 2 out of 3 terms correct) **or** correct value for $n = 45$ (ignore $n = 4$)
	$("45"-2)\times180$ or $\frac{"45"}{2}\left[2(84)+("45"-1)(4)\right]$ oe or $("44"-2)\times180$ or $\frac{"44"}{2}\left[2(84)+("44"-1)(4)\right]$ oe			M1 dep on previous M1 NB $n > 5$
	Working required	7740		A1 dep on M5 Accept 7560 or 7480
				Total 6 marks

24 **ALT**	$\frac{n}{2}\left[2(96)+(n-1)(-4)\right]$ or $\frac{n}{2}[192-4n+4]$ or $\frac{n}{2}[196-4n]$ oe or $98n-2n^2$ oe		6	M1 for correctly substituting into $S_n=\frac{n}{2}\left[2a+(n-1)d\right]$ using exterior angles
	$\frac{n}{2}\left[2(96)+(n-1)(-4)\right]=360$ or $\frac{n}{2}[196-4n]=360$ oe or $98n-2n^2=360$ oe			M1 for equating S_n with 360 S_n must come from correct substitution of a and d into $\frac{n}{2}\left[2a+(n-1)d\right]$
	eg $2n^2-98n+360(=0)$ $n^2-49n+180(=0)$ oe Allow $n^2-49n=-180$			M1dep on M2 for multiplying out and collecting terms, forming a three term quadratic in any form of $an^2 + bn + c$ (= 0) where at least 2 coefficients (a or b or c) are correct
	e.g $(n-45)(n-4)(=0)$ $n=\frac{--49\pm\sqrt{(-49)^2-4\times1\times180}}{2}$ e.g. $\left(n-\frac{49}{2}\right)^2-\left(\frac{49}{2}\right)^2=-180$			M1ft dep on M2 method to solve **their** 3 term quadratic using any correct method (allow one sign error and some simplification – allow as far as eg $\frac{49\pm\sqrt{2401-720}}{2}$ **or** if factorising allow brackets which expanded give 2 out of 3 terms correct) **or** correct value for $n = 45$ (ignore $n = 4$)
	("45"$-2)\times180$ or $\frac{"45"}{2}\left[2(84)+("45"-1)(4)\right]$ oe or ("44"$-2)\times180$ or $\frac{"44"}{2}\left[2(84)+("44"-1)(4)\right]$ oe			M1 dep on previous M1 NB $n > 5$
	Working required	7740		A1 dep on M5 Accept 7560 or 7480
				Total 6 marks