Question Number	Scheme	Marks
5(a)	$\sum\limits_{r=1}^{n}(3r+5)=8+11+14+...+(3n+5)=\dfrac{1}{2}n(8+3n+5)=\dfrac{1}{2}n(3n+13)$ $*$	M1M1A1cso (3)
ALT	$\sum\limits_{r=1}^{n}(3r+5)=\sum\limits_{1}^{n}3r+5n=\dfrac{n}{2}(3+3n)+5n=\dfrac{n}{2}(13+3n)$ $*$	M1M1A1cso
(b)	$\sum\limits_{r=35}^{50}(3r+5)=\dfrac{50}{2}(13+150)-\dfrac{34}{2}(13+102)$	M1
	$=2120$	A1 (2)
(c)	$\dfrac{n}{2}(13+3n)=385$	
	$3n^2+13n-770=0$	M1
	$(3n+55)(n-14)=0 \qquad n=14$	M1A1 (3)
		[8]

(a)	
M1	Evaluate **either** first and last terms **or** first and common difference
M1	Use either sum formula. Can be shown explicitly or implied by a correct, full substitution of n and their a and their d or l
A1cso	Reach the **given** result with no errors in the working. Must be the complete result, not just the RHS or there must be a conclusion eg "shown"
ALT	
M1	Split the $(3r + 5)$ into 2 parts and deal with the 5 correctly
M1	Sum $(3r)$ either by using a summation formula or by using the standard result
A1	Reach the **given** result with no errors in the working
(b)	
M1	Express the required sum as the difference of 2 sums. Second sum must have 34 terms. Use the result given in (a). **Using a standard formula** with first term and either last term or common difference scores 0/2 as question states "hence". Calculator solutions (without showing the difference of the 2 sums first) score M0
A1	Correct answer.
(c)	
M1	Use the result in (a) or some other valid method to form a 3 term quadratic in n
M1	Solve their 3TQ by any valid means. Must reach $n = ...$ Negative value need not be seen
A1	Correct answer. $n = 14$ and no other
	Correct quadratic followed by correct answer scores 3/3
	Incorrect quadratic solved by calculator M0A0