

Question	Scheme	Marks
5(a)	Mark both parts together $4k+1 = a + (6-1)d \Rightarrow [4k+1 = a + (6-1)d]$ $36k+1 = \frac{10}{2}(2a+9d) \Rightarrow [36k+1 = 10a+45d]$ Solves the simultaneous equations by any method: (i) $d = \frac{4k+9}{5}$ (ii) $a = -8^*$	M1 M1 M1 A1 A1 cso [5]
(b)	$7 = -8 + 3d \Rightarrow 7 = -8 + 3\left(\frac{4k+9}{5}\right) \Rightarrow 25 = 4k+9 \Rightarrow k = 4^*$	M1A1 cso [2]
(c)	$\left[d = \frac{4 \times 4 + 9}{5} = 5 \text{ you may see this in part (c)} \right]$ $\frac{n}{2}(2 \times -8 + (n-1) \times 5) = 5[-8 + (n+10-1)5] + 105$ $\Rightarrow -21n + 5n^2 = 370 + 50n + 210 \Rightarrow 5n^2 - 71n - 580 = 0$ $\Rightarrow (5n+29)(n-20) = 0 \Rightarrow n = 20$	M1 dM1 M1A1 [4]
Total 11 marks		

Part	Mark	Notes
(a)		Mark parts (i) and (ii) together. If they find a first score M1M1M1-
	M1	For using the correct formula to write down: $4k + 1 = a + (6 - 1)d$
	M1	For using the correct formula to write down: $36k + 1 = \frac{10}{2}(2a + 9d)$
(i)	M1	For an explicit, complete method to solve their two simultaneous equations to find a value for d in terms of k , and a value for a Allow one processing error. Note: This is a show question
(ii)	A1	For the correct expression for d
	A1 cso	For finding $a = -8$ With no errors, this is a given value. Award this if they find only a but not d
(b)	M1	Uses a correct n th term with their expression for d to form a linear equation and attempts to solve it.
	A1 cso	For $k = 4$ With no errors, this is a given value.
(c)	M1	For setting up the equation as required using the given a and their d No simplification is required for this mark.
	dM1	For forming a 3TQ using the given a and their d Allow one error: $5n^2 - 71n - K = 0$ Or $5n^2 - Ln - 580 = 0$ Or $Mn^2 - 71n - 580 = 0$ Where K, L and M are constants. Note: this mark is dependent on the previous mark being scored.
	M1	For solving their 3TQ using any valid, correct method If they use a calculator and the 3TQ is correct together with the correct final value, award this mark. If the 3TQ is NOT correct, they must show us a correct valid method for solving the 3TQ for the award of this mark.
	A1	For $n = 20$ with no other value.