Question Number	Scheme	Marks
4(a)	$a = 18$	B1 (1)
(b)	$S_2 = 2a + d = 2\times 2(10-2)$	M1
	$36 + d = 32 \qquad d = -4$	A1 (2)
(c) (i)	$S_n = 2n(10-n) > -50$	M1
(ii)	$20n - 2n^2 > -50$	
	$n^2 - 10n - 25 < 0$	A1
	Crit values $\quad n = \dfrac{10 \pm \sqrt{100+100}}{2} = 12.07,\ -2.07$	M1
	Greatest $n = 12$	A1 (4)
		[7]

Notes

(a) B1 $a = 18$ only

(b)

M1 for $a + (a + d) = 2\times 2(10-2)$ ft their a. The method **must** be complete.

A1 for $d = -4$ **Note: *d* = 14 is M0A0**

ALT Method of differences

M1 for correct values of S_n seen in a table **and** finding first **and** second differences.

A1 for at least three −4's seen with no incorrect values.

(c)

(i) M1 for writing down the correct inequality as shown

A1 for forming a 3TQ with the correct inequality as shown

(ii) M1 for attempting to solve the 3TQ either by formula or completing the square.

(Please refer to General Guidance for the definition of an attempt)

Note: Attempts to factorise using integers are MO

A1 for $n = 12$. If they also offer $n = -2$ then this is A0. Do not isw.

Special Case: Answer only of *n* = 12, or using trial and error and giving *n* = 12 is M1A1