

Question			Answer	Marks	AO	Guidance
7	(a)		common difference of B is $-d$	B1	1.1	soi
			$(b_1 = a_{100} =) 4 + 99d$	B1	1.1	soi (or $a_1 + 99d$)
			$b_i = 4 + 99d + (i - 1)(-d)$ or $4 + 100d - id$	M1	3.1a	For an attempt at the general term b_i using $b_1 (= a_{100})$, i.e. an expression of the form $a_1 + kd + (i - 1)(\pm d)$ oe
				A1	2.1	Fully correct expression for b_i
			$4 + 100d - id = 4 + (i - 1)d + 10$	M1	1.1	Equating their b_i to an expression for $a_i + 10$
			$(2id = 101d - 10)$			May see $a_1 + (i - 1)d + 10$
			$\Rightarrow i = \frac{101}{2} - \frac{5}{d}$ AG	A1	1.1	www (so this mark is dependent on all previous marks)
						May see a_1 used throughout instead of 4
						Condone other letters used throughout (e.g. n for i and c for $-d$):
						- Must recover to d in order to solve (A1A1)
						- Must recover to i to demonstrate the AG (A1)
				[6]		
7	(b)		$\frac{101}{2} - \frac{5}{d}$ not always integer [between 1 & 100]	B1	2.4	soi (accept e.g. “ i must be an integer”)
			$d = 2$ or 10	B1	3.2b	Ignore negative values (but B0 for any additional positive values)
				[2]		