

Question number	Scheme	Marks
7 (a)(i)	$a + 4d = 4x + 6$ $a + 7d = 7x + 3$ $\Rightarrow 3d = 3x - 3 \Rightarrow d = x - 1^*$	M1A1cso
(ii)	$a + 7(x - 1) = 7x + 3 \Rightarrow a = 10$ or $a + 4(x - 1) = 4x + 6 \Rightarrow a = 10$	M1A1 [4]
(b)	$42 = 10 + 8(x - 1) \Rightarrow x = 5$	M1A1 [2]
(c)	$d = x - 1 \Rightarrow d = 5 - 1 = 4$ $S_{n+1} = 12U_n + 18 \Rightarrow \frac{n+1}{2}(2 \times 10 + [(n+1) - 1]4) = 12[10 + (n-1)4] + 18$ $\Rightarrow n^2 - 18n - 40 = 0$ $\Rightarrow (n - 20)(n + 2) = 0 \Rightarrow n = 20$	B1 M1 M1 M1A1 [5]
Total 11 marks		
(a) (i) M1 A1 cso (a) (ii) M1 A1 (b) M1 A1 (c) B1 M1 M1 M1 A1	$a + 4d = 4x + 6$ and $a + 7d = 7x + 3$ Obtains the given answer with no errors in the working Substitution of $d = x - 1$ $a = 10$ Use of $a + 8d = 42$ $x = 5$ $d = 4$ Use of $\frac{n}{2}(2a + (n-1)d)$ Simplifying to $n^2 - 18n - 40 = 0$ Solving the 3TQ $n = 20$ if shown must reject $n = -2$	