



Air maths tuition

Interact, engage and perform

Recurrence Relationships | Past Paper Question | C1 Edexcel June 2014 Q5

A sequence of numbers a_1, a_2, a_3, \dots is defined by

$$a_{n+1} = 5a_n - 3, \quad n \geq 1$$

Given that $a_2 = 7$,

(a) find the value of a_1 (2)

(b) Find the value of $\sum_{r=1}^4 a_r$ (3)

(a)

when $n=1, a_2 = 5a_1 - 3$

$$\therefore 7 = 5a_1 - 3$$
$$\therefore 10 = 5a_1$$
$$\therefore a_1 = 2$$

when $n=2, a_3 = 5a_2 - 3$

$$= 5(7) - 3$$
$$= 32$$

when $n=3, a_4 = 5a_3 - 3$

$$= 5(32) - 3$$
$$= 157$$

(b) $\sum_{r=1}^4 a_r = a_1 + a_2 + a_3 + a_4$

$$= 2 + 7 + 32 + 157$$
$$= 198$$

With the acknowledgement of [Exam Solutions](#).
Find lots more revision sheets on [Air Maths Tuition](#).
[This Video](#)



Exam Solutions
m a t h s m a d e e a s y