

Transition-Arithmetic Progressions Self-Assessed Exercise

Jan 05

6 A sequence is given by

$$a_1 = 4,$$
$$a_{r+1} = a_r + 3.$$

Write down the first 4 terms of this sequence.

Find the sum of the first 100 terms of the sequence. [5]

Jun 05

2 The n th term of an arithmetic progression is $6 + 5n$. Find the sum of the first 20 terms. [4]

Jan 06

12 (i) Granny gives Simon £5 on his 1st birthday. On each successive birthday, she gives him £2 more than she did the previous year.

(A) How much does she give him on his 10th birthday? [2]

(B) How old is he when she gives him £51? [2]

(C) How much has she given him **in total** when he has had his 20th birthday present? [2]

Jun 06

6 A sequence is given by the following.

$$u_1 = 3$$
$$u_{n+1} = u_n + 5$$

(i) Write down the first 4 terms of this sequence. [1]

(ii) Find the sum of the 51st to the 100th terms, inclusive, of the sequence. [4]

Jan 07

- 8** The 7th term of an arithmetic progression is 6. The sum of the first 10 terms of the progression is 30.

Find the 5th term of the progression.

[5]

Jun 07

- 11** (a) André is playing a game where he makes piles of counters. He puts 3 counters in the first pile. Each successive pile he makes has 2 more counters in it than the previous one.

(i) How many counters are there in his sixth pile? [1]

(ii) André makes ten piles of counters. How many counters has he used altogether? [2]

Jun 08

- 8** The 11th term of an arithmetic progression is 1. The sum of the first 10 terms is 120. Find the 4th term. [5]

Jan 09

- 6** An arithmetic progression has first term 7 and third term 12.

(i) Find the 20th term of this progression. [2]

(ii) Find the sum of the 21st to the 50th terms inclusive of this progression. [3]

Jun 09

- 11** (i) In a 'Make Ten' quiz game, contestants get £10 for answering the first question correctly, then a further £20 for the second question, then a further £30 for the third, and so on, until they get a question wrong and are out of the game.
- (A) Haroon answers six questions correctly. Show that he receives a total of £210. [1]
- (B) State, in a simple form, a formula for the total amount received by a contestant who answers n questions correctly.
- Hence find the value of n for a contestant who receives £10 350 from this game. [4]

Jan 10

- 6** (i) Find the 51st term of the sequence given by

$$\begin{aligned}u_1 &= 5, \\u_{n+1} &= u_n + 4.\end{aligned}$$

[3]