

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Algebra

Term-to-term rules

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For questions 1 to 4 you must **NOT** use a calculator.



Q1.

A linear sequence has

- 1st term = 10
- 1st term + 2nd term = 39

Work out the 5th term.

(Total 4 marks)

Q2.

A sequence has three terms.

The term-to-term rule for the sequence is

multiply by 8 and then add 11

- (a) The first term of the sequence is -1
Work out the third term.
- (b) The order of the three terms is reversed to make a new sequence.
Work out the term-to-term rule for this sequence.

(2)

(1)

(Total 3 marks)

Q3.

The term-to-term rule for a sequence is

subtract k

The 1st term is 34

The 4th term is 10

Work out the value of k .

(Total 3 marks)

Q4.

The term-to-term rule for a sequence is

multiply by 2

The 3rd term of the sequence is 46

Work out the 1st term.

Give your answer as a decimal.

(Total 3 marks)

For the rest of the questions, you may use a calculator.



Q5.

A linear sequence starts

4 7 10 13

Write down the next number in this sequence.

(Total 1 mark)

Q6.

A linear sequence starts

19 14 9 4

Write down the next number in this sequence.

(Total 1 mark)

Q7.

Here is a sequence.

3 6 12 24

Write down the term-to-term rule for this sequence.

(Total 1 mark)

Q8.

Here are the first three terms of a linear sequence.

5 11 17

(a) Write down the next term.

(1)

(b) Describe the term-to-term rule.

(1)

(Total 2 marks)

Q9.

Here is the term-to-term rule for a sequence.

Double the previous term and add 3

The first three terms of the sequence are $a + 1$ $2a + 5$ $4a + 13$

Show that the sum of the first **four** terms is a multiple of 3

(Total 3 marks)

Q10.

The term-to-term rule for a sequence is

subtract 1 then multiply by 5

The 1st term is 4

Work out the 3rd term.

(Total 2 marks)

Q11.

The term-to-term rule for a sequence is

add 20 then divide by 2

The 2nd term is 50

Work out the 1st term.

(Total 2 marks)

Q12.

The term-to-term rule for a sequence is

add 1 then double

The first two terms are 2 and 6

Which of these is the next term?

9

13

14

18

(Total 1 mark)

Q13.

(a) The term-to-term rule for a sequence is

add 4 then divide by 2

The 1st term of the sequence is 36

Work out the 3rd term.

(2)

(b) The term-to-term rule for a different sequence is

divide by 3 then add 10

The 2nd term of this sequence is 60

Work out the 1st term.

(2)

(Total 4 marks)

Q14.

- (a) The term-to-term rule of a sequence is

Add 8 and divide by 2

The first term of the sequence is -24 . Work out the next two terms.

(2)

- (b) The term-to-term rule of a different sequence is

Subtract 1 and multiply by 5

The third term of this sequence is 120

..... 120
Work out the first term.

(2)

(Total 4 marks)

Term-to-term rules Cross-topic questions

Q15.

x	0	2	4	6	8	
y	3	7	11		19	23

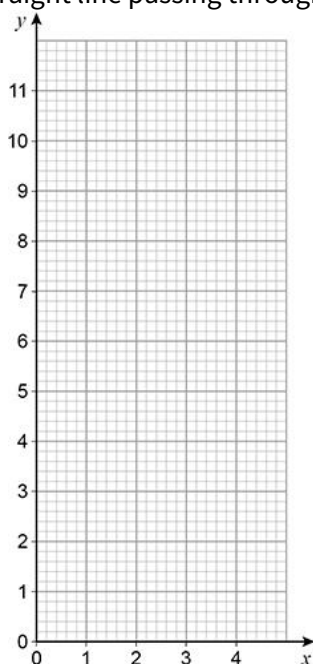
The x -values in the table make a linear sequence.

The y -values in the table make a different linear sequence.

- (a) Copy and complete the table.

(2)

- (b) Copy the grid and draw a straight line passing through the points $(0, 3)$, $(2, 7)$ and $(4, 11)$



(2)

- (c) Use the graph to work out the value of y when $x = 3$

(1)

(Total 5 marks)