Exam Style Questions

Sequences

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser
You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don’t spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

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Video 286
Video 287
1. Here are the first four terms of a number sequence.

\[ 8 \quad 14 \quad 20 \quad 26 \]

(a) Write down the next term of the number sequence.

.............................

(1)

(b) Explain how you found your answer.

........................................................................................................................................

(1)

2. Here are the first four terms of a number sequence.

\[ 2 \quad 5 \quad 8 \quad 11 \]

(a) (i) Write down the next term of the number sequence.

.............................

(1)

(ii) Explain how you found your answer.

........................................................................................................................................

(1)

The 40th term of the number sequence is 119.

(b) Work out the 41st term of the number sequence.

.............................

(1)
3. Here are the first four terms of a number sequence.

\[
\begin{array}{cccc}
11 & 15 & 19 & 23 \\
\end{array}
\]

(a) (i) Write down the next term of the number sequence.

............................

(1)

(ii) Explain how you found your answer.

........................................................................................................

(1)

The 100th term of the number sequence is 407.

(b) Work out the 99th term of the number sequence.

............................

(1)

4. Here are the first four terms of a number sequence.

\[
\begin{array}{cccc}
7 & 10 & 13 & 16 \\
\end{array}
\]

Work out the difference between the 10th term and 15th term in the sequence.

............................

(2)
5. (a) Write down the next term in this sequence.

\[ 5 \quad 9 \quad 13 \quad 17 \quad \ldots \ldots \]

\( \ldots \ldots \) (1)

(b) Describe the rule for continuing the sequence.

\( \ldots \ldots \) (1)

6. (a) Write down the next term in this sequence.

\[ 2 \quad 6 \quad 18 \quad 54 \quad \ldots \ldots \]

\( \ldots \ldots \) (1)

(b) Describe the rule for continuing the sequence.

\( \ldots \ldots \) (1)

7. (a) Write down the next term in this sequence.

\[ 256 \quad 128 \quad 64 \quad 32 \quad \ldots \ldots \]

\( \ldots \ldots \) (1)

(b) Describe the rule for continuing the sequence.

\( \ldots \ldots \) (1)
8. Write down the next two numbers in this sequence.

7  8  10  13  ..........  .........

.......... and .......... (1)

9. Write down the next two numbers in this sequence.

2  5  11  23  ..........  .........

.......... and .......... (1)

10. Here are the first five terms of a number sequence.

9  15  21  27  33

(a) (i) Write down the next term of the number sequence.

.......... (1)

(ii) Explain how you found your answer.

.............................................................................................................. (1)

302 is not a term in this number sequence.

(b) Explain why.

.............................................................................................................. (1)
11. Here are the first four terms of a number sequence.

8  12  16  20

(a) (i) Write down the next term in the sequence.

............................. (1)

(ii) Explain how you found your answer.

............................................................................................................. (1)

(b) Write down the 9th term in the sequence.

............................. (1)

Ricky says 1001 is in the sequence.

(c) Explain why Ricky is wrong.

.............................................................................................................

............................................................................................................. (1)

12. Here are the first 4 terms in a number sequence.

132  124  116  108

(a) Write down the next two terms in this number sequence.

............................. and ............................. (1)

11 cannot be a term in this number sequence.

(b) Explain why.

............................................................................................................. (1)
13. Here are the first five terms of a number sequence.

\[ 3 \quad 8 \quad 13 \quad 18 \quad 23 \]

(a) Work out the 10th term of this number sequence.

..............................

(2)

Here are the first four terms of another number sequence.

\[ -2 \quad 4 \quad 10 \quad 16 \]

(b) Find **two** numbers that are in both number sequences.

..............................

(2)

14. Here is a number sequence.
The rule for finding the next term is to add \( a \), where \( a \) is an integer.

\[ 8 \quad ....... \quad ....... \quad 29 \]

Work out the two missing terms.

.............................. and ..............................

(2)
15. (a) The first term of a sequence is \(-5\)
    The rule for continuing the sequence.

    Multiply by 4
    then
    Subtract 3

    What is the second term of the sequence?

    ........................................ (1)

(b) Here is a rule for continuing a different sequence.

    Add 4
    then
    Multiply by 2

    The second term of this sequence is 20.
    What is the first term?

    ........................................ (2)
16. Here is a sequence

1  3  17  115

To find the next term the rule is

multiply by \( a \) and then subtract \( b \), where \( a \) and \( b \) are integers.

Find the values of \( a \) and \( b \).

\[
a = \ldots \ldots \ldots \ldots \ldots
\]

\[
b = \ldots \ldots \ldots \ldots \ldots
\] (2)

17. Write down the next term in the sequence.

\[
2a + b \quad 3a + 5b \quad 4a + 9b
\]

\[
\ldots \ldots \ldots \ldots \ldots
\] (2)