



FluidMaths

GCSE Mathematics (Grade 9-1)

Problem Solving
Linear Sequences
Questions

The marks shown are for guidance purposes only

When not specified, round all non-terminating decimals during your calculations to 3 significant figures

Some useful strategies in problem-solving

- Read the question carefully
- Sketch a diagram where applicable
- Take note of key information
- Write down any formulae you may need
- Tackle the problem in bite-size rather than as a whole
- Concentrate on the part of the problem you understand and start from there
- Collaborate with a partner and share ideas
- Use a dictionary to find the meaning of any confusing words
- Check that your answers make sense in the context of the question

1	<p>Here are the first 4 terms of a sequence.</p> $\frac{1}{3}, \quad \frac{1}{7}, \quad \frac{1}{11}, \quad \frac{1}{15} \dots$ <p>Show that the 20th term of the sequence is $\frac{1}{79}$</p> <p>[4marks]</p>
2	<p>Here are the first 4 terms of a sequence</p> $\frac{1}{4}, \quad \frac{1}{7}, \quad \frac{1}{10}, \quad \frac{1}{13} \dots$ <p>Find the 30th term in the sequence</p> <p>[3marks]</p>
3	<p>Here are the first 4 terms of a sequence</p> $25, 19, 13, 7, \dots$ <p>The 30th term of the sequence is $k - 120$.</p> <p>Find the value of k</p> <p>[4marks]</p>
4	<p>Here are the first 4 terms of a linear sequence</p> $5 + x, \quad 7 + 2x, \quad 9 + 3x, \quad 11 + 4x, \dots$ <p>The 5th term in the sequence is 3 times the 1st term.</p> <p>Calculate the value of x</p> <p style="text-align: right;">[4marks]</p>
5	<p>Here are the first three terms of a linear sequence.</p> $6x + 1, \quad 4x - 1, \quad 2x - 3, \dots$ <p>Given that the 3rd term in the sequence is 5 times the 4th term, what is the value of x?</p> <p style="text-align: right;">[4marks]</p>

6	<p>Here are the first three terms of a sequence</p> $\frac{1}{5a}, \frac{2}{3a}, \frac{3}{a}, \dots$ <p>Given that the 4th term of the sequence is $\frac{1}{3}$, find the value of a [3marks]</p>
7	<p>The Nth term of sequence A is given as $xn + y$ The Nth term of sequence B is given as $yn + x$ The ratio of the first term in sequence A to the second term in sequence B is 2:5 Given that the 4th term of sequence A is 18, what is the 4th term of sequence B? [6marks]</p>
8	<p>Here is the Nth term of a linear sequence is $T_n = 5n - 1$ Find the two consecutive terms which have a sum of 203 [5marks]</p>
9	<p>5.2, x and 8.6 are the first 3 terms of a linear sequence Find the 150th term in the sequence. Give your answer as a decimal [4marks]</p>
10	<p>Here are the first 4 terms of a linear sequence</p> $x + y, x + 2y, x + 3y, x + 4y\dots$ <p>The sum of the 1st and 2nd terms is 18 The sum of the 1st and 4th terms is 22 Find the sum of the first 4 terms of the sequence [5marks]</p>