GCSE MATHEMATICS

Quadratic Sequences

These questions have been taken or modified from previous AQA GCSE Mathematics Papers.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Information

- The marks for questions are shown in brackets.
- The quality of your written communication is specifically assessed in questions that are indicated with an asterisk (*).

Advice

- Read each question carefully before you start to answer it.
- In all calculations, show clearly how you work out your answer.
- Use the number of marks for the question as a guide to the amount of time you need to spend.
- Look at previous parts of the question, e.g. a), b), c) i) as there may be information there you need to answer later parts.
- Check your answer is realistic and appropriate.
- For calculator decimal numbers always write your full calculator display in the working out area and then, if you need to, round the answer on the answer line.

This booklet was curated and modified using AQA examination papers between 2010-2016, for thecalculatorguide.com , where you can find many more booklets on further topics. All questions used are reproduced for educational purposes only.

1 The n^{th} term of a sequence is $n^2 + 50$

1 (a) Work out the first three terms of the sequence.

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Answer 1st term ..... 2nd term ..... 3rd term ..... *(2 marks)*

1 (b) How many terms in the sequence are less than 100?

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Answer ..... *(2 marks)*

2 The nth term of a sequence is $\frac{n^2}{2}$

Which term in the sequence is the first to have a value greater than 50?

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Answer ..... *(2 marks)*

3 The nth term of a sequence is $n^2 - 3$ **[2 marks]**

Work out the first **three** terms of the sequence.

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Answer ..... , ... , ...

4 The nth term of a quadratic sequence is $n^2 + 2n + 3$

Show, **algebraically**, that 258 is a term in the sequence. **[4 marks]**
Do **not** use Trial and Improvement.

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5 (a) The nth term of a sequence is given by $n^2 - n + 4$

Work out the first 5 terms of the sequence.

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Answer ..... , ... , ... , ... , ... *(2 marks)*

5 (b) Work out the 25th term of the sequence 2, 3, 5, 8, 12, ...

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Answer ..... *(2 marks)*

6 (a) Work out the nth term of the sequence.

6 11 16 21 26 .....

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Answer ..... *(2 marks)*

6 (b) Work out the nth term of the sequence.

9 15 23 33 45 .....

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Answer ..... *(4 marks)*

7 Work out an expression for the nth term of the quadratic sequence

8 13 20 29 ....

Give your answer in the form $an^2 + bn + c$ where a, b and c are constants.

[3 marks]

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Answer .....

8 Work out an expression for the nth term of the quadratic sequence

10 12 18 28 ....

Give your answer in the form $an^2 + bn + c$ where a, b and c are constants.

[3 marks]

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Answer .....

9 Work out an expression for the nth term of the quadratic sequence

4 8 15 25 38 ....

[4 marks]

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Answer .....

10 Work out the nth term of this quadratic sequence.

5 8 12 17 23 ...

[4 marks]

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Answer .....