

# GCSE Maths: Sequences and term-to-term rules (Higher): worksheet

GCSE Maths - Sequences and nth Term - Higher - Lesson 11.1

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_

12 questions. Write your answers in the spaces. Answers and step-by-step help are free at [websink.site/gcse/maths/ch11-sequences/higher/sequences-and-term-to-term-rules/](https://websink.site/gcse/maths/ch11-sequences/higher/sequences-and-term-to-term-rules/)

## Exercise 11A Term-to-term rules

Non-calculator

1 Write down the **next two terms** of each sequence.

(a) 4, 7, 10, 13, ...

Answer: \_\_\_\_\_

(b) 30, 26, 22, 18, ...

Answer: \_\_\_\_\_

(c) 5, 10, 20, 40, ...

Answer: \_\_\_\_\_

(d) 64, 32, 16, 8, ...

Answer: \_\_\_\_\_

(e) 1, 2, 4, 7, 11, ...

Answer: \_\_\_\_\_

(f) 0.5, 1.2, 1.9, 2.6, ...

Answer: \_\_\_\_\_

2 Describe the **term-to-term rule** of each sequence in words.

(a) 6, 11, 16, 21, ...

Answer: \_\_\_\_\_

(b) 100, 93, 86, 79, ...

Answer: \_\_\_\_\_

(c) 3, 6, 12, 24, ...

Answer: \_\_\_\_\_

(d) 162, 54, 18, 6, ...

Answer: \_\_\_\_\_

(e) 2.5, 3, 3.5, 4, ...

Answer: \_\_\_\_\_

(f) -4, -1, 2, 5, ...

Answer: \_\_\_\_\_

3 The **first term** and the **term-to-term rule** of some sequences are given. Write down the first five terms of each.

(a) First term 4; rule: add 6

Answer:

(b) First term 100; rule: subtract 7

Answer:

(c) First term 3; rule: multiply by 2

Answer:

(d) First term 80; rule: divide by 2

Answer:

(e) First term 2; rule: multiply by 3 and then subtract 1

Answer:

(f) First term 1; rule: multiply by 2 and then add 3

Answer:

4 Sam has £8 in his money box in week 1. Each week he adds £5. How much does he have in week 6?

Answer:

5 Find the 10th term of the sequence 3, 8, 13, 18, ...

Answer:

6 Ali says, "The rule for 3, 6, 12, 24, ... is add 3." Explain why Ali is wrong.

Answer:

7 Find the missing numbers in each sequence.

(a) 5, ?, 17, 23, ?

Answer:

(b) 100, 88, ?, 64, ?

Answer:

(c) ?, 14, 21, ?, 35

Answer:

(d) -12, ?, -4, 0, ?

Answer:

8 Write down the next two terms of each sequence.

(a)  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1, ...

Answer:

(b)  $\frac{1}{2}$ , 1,  $\frac{3}{2}$ , 2, ...

Answer:

(c) 8, 5, 2, -1, ...

Answer:

(d) -20, -15, -10, -5, ...

Answer:

- 9** Freya says the next term in the sequence 1, 2, 4, 7, 11, ... is 15 because "the last difference was 4, so add 4 again". Is she right? Explain.

Answer:

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- 10** A tank holds 640 litres at the start. Each day half of the water is used. Term 1 is the amount at the start, term 2 is the amount after 1 day, and so on. How much water is left after 4 days?

Answer:

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- 11** The first term of a sequence is 5. The rule is "multiply by 2 and then subtract 3". Work out the 7th term.

Answer:

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- 12** The first term of a sequence is 2 and the rule is "multiply by 2 and then subtract 1". Work out the first term that is bigger than 1000.

Answer:

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