

## Sequences

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Examples



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Workout

Question 1: Describe the rule for each sequence below and find the next three terms

- (a) 3, 5, 7, 9, ...      (b) 5, 10, 15, 20, ...      (c) 1, 4, 7, 10, ...  
(d) 20, 19, 18, 17, ...      (e) 5, 10, 20, 40, ...      (f) 10, 14, 18, 22, ...  
(g) 1, 6, 11, 16, ...      (h) 2, 4, 8, 16, ...      (i) 100, 80, 60, 40, ...  
(j) 5, 12, 19, 26, ...      (k) 1, 10, 100, 1000, ...      (l) 64, 32, 16, 8, ...  
(m) 55, 66, 77, 88, ...      (n) 32, 41, 50, 59, ...      (o) 15, 9, 3, -3, ...  
(p) 2, 2.5, 3, 3.5, ...      (q) 8, 22, 36, 50, ...      (r) 1, 3, 9, 27, ...

Question 2: Describe the rule for each sequence below and find the next term.

- (a) 2, 3, 5, 8, ...      (b) 6, 8, 12, 18, ...      (c) 5, 15, 35, 65, ...  
(d) 100, 99, 97, 94, ...      (e) 3, 4, 7, 12, ...      (f) 5, 6, 8, 12, ...

Question 3: Each sequence below increases/decreases by the same amount each time.  
Find the missing terms.

- (a) 4, □, 8, 10, ...      (b) 2, 5, □, 11, ...      (c) 5, 9, □, 17, ...  
(d) 25, □, 37, 43, ...      (e) 15, 24, □, 42, ...      (f) 34, □, 24, 19, ...  
(g) 18, □, 40, 51, ...      (h) 1, □, □, 19, ...      (i) 3, □, □, 27, ...  
(j) 18, □, □, 39, ...      (k) 6, □, □, □, 42, ...

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### Apply

Question 1: Here are the first four terms of a number sequence 9, 15, 21, 27, ...

- (a) Write down the next term of the number sequence.
- (b) Explain how you found your answer to (a)

James says that the 20th term of the sequence is 122

- (c) Explain why James must be wrong.

Question 2: Here are the first four terms of a number sequence 5, 8, 11, 14, ...

- (a) Write down the next term of the number sequence.
- (b) Find the 10th term of the sequence.

The 100th term of the number sequence is 302

- (c) Work out the 101st term of the number sequence.
- (d) Work out the 99th term of the number sequence.

Question 3: Here are the first four terms of a number sequence 9, 13, 17, 21, ...

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

Question 4: Here are the first five terms of a number sequence 18, 30, 42, 54, 66, ...

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

883 is **not** a term in this number sequence.

- (b) Explain why.

Question 5: The first term of a sequence is 3

The rule for continuing the sequence is **multiply by 4 then subtract 5**

- (a) What is the second term of the sequence?
- (b) What is the third term of the sequence?

Question 6: The second term of a sequence is 26

The rule for continuing the sequence is **Add 7 then multiply by 2**

- (a) What is the first term of the sequence?
- (b) What is the third term of the sequence?

Question 7: 2, 6, 22, 86, ...

The rule for continuing the sequence is **multiply by a then subtract b**

Find the values of **a** and **b**

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Question 8: Here are the first four terms of a number sequence 4, 9, 14, 19, ...  
Here are the first four terms of another number sequence -11, -5, 1, 7, ...  
Find **three** numbers that are in both number sequences.

Question 9: A number sequence is generated by increasing by the same amount each time.  
The first term is 7 and the fifth term is 13.

Work out the fourth term.

Question 10: Write down the next two terms in this sequence

$$5a - b, 9a - 2b, 13a - 3b, \dots$$

Question 11: Find the next term in these sequences

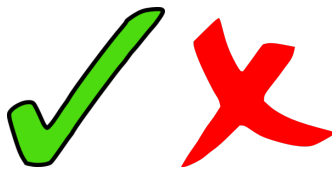
(a) O, T, T, F, F, ...

(b) M, T, W, T, F, ...

(c) R, O, Y, G, B, ...

(d) 1, 11, 21, 1211, ...

Answers



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