

Algebra 1 - Arithmetic and Geometric Sequences - Quiz

Common Core F-IF.A.3, F-BF.A.1a, F-BF.A.2, F-LE.A.2 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Check what you know about arithmetic and geometric sequences with 10 multiple-choice questions (F-IF.A.3, F-BF.A.1a, F-BF.A.2, and F-LE.A.2). Each question has one correct answer, and the explanation points out the common error behind the wrong choices. Use the results to decide what to practice next.

Algebra 1 · Common Core State Standards: **F-IF.A.3, F-BF.A.1a, F-BF.A.2, F-LE.A.2**

Questions

Question 1

What is the next term of 11,15,19,23?

- A. 26
- B. 31
- C. 27
- D. 29

Question 2

What is the common ratio of 2,8,32,128 ?

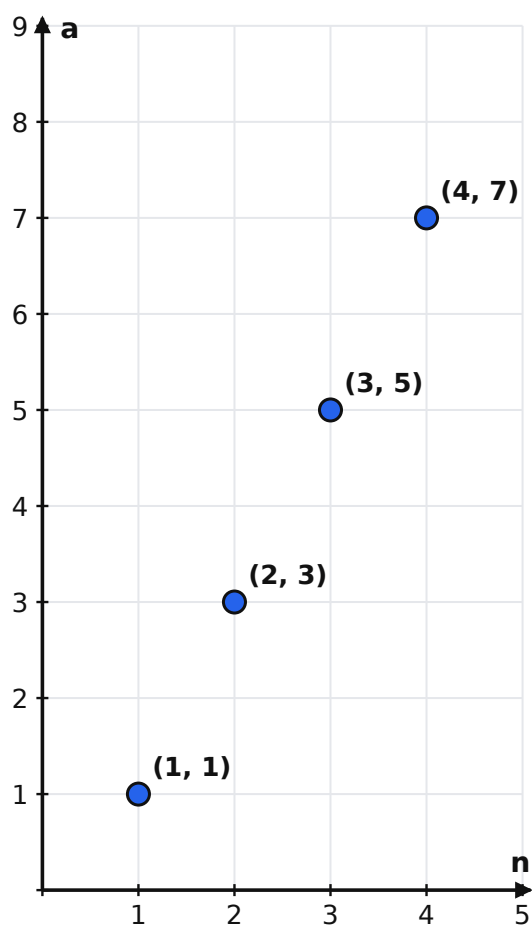
- A. 6
- B. 3
- C. 16
- D. 4

Question 3

Which is an explicit rule for 5,8,11,14?

- A. $a_n = 3n + 2$
- B. $a_n = 3n + 5$
- C. $a_n = 5n + 3$
- D. $a_n = n + 3$

Question 4



Which rule describes the terms graphed?

- A. $a_n = 2n + 1$
- B. $a_n = 2n - 1$
- C. $a_n = n + 2$
- D. $a_n = 2^n$

Question 5

Which is the recursive rule for 20, 17, 14, 11?

- A. $a_1 = 20, a_n = a_{n-1} - 3$
- B. $a_1 = 20, a_n = a_{n-1} + 3$
- C. $a_1 = 20, a_n = 3a_{n-1}$
- D. $a_1 = 3, a_n = a_{n-1} - 20$

Question 6

What is the 5th term of the geometric sequence with $a_1 = 2$ and $r = 3$?

- A. 30
- B. 486

- C. 162
- D. 54

Question 7

Which sequence is geometric?

- A. 4,12,36,108
- B. 4,8,12,16
- C. 4,6,9,13
- D. 4,12,20,28

Question 8

Figure 1 

Figure 2 

Figure 3 

How many squares are in Figure 6 of the pattern?

- A. 16
- B. 19
- C. 22
- D. 18

Question 9

A town has 500 people and its population doubles every decade. Counting 500 as term 1, how many people are there in term 4?

- A. 2,000
- B. 1,500
- C. 8,000
- D. 4,000

Question 10

n	1	2	3	4
a	6	12	24	48

What type of sequence is shown in the table?

- A. Arithmetic with difference 6

- B. Geometric with ratio 2
- C. Geometric with ratio 6
- D. Arithmetic with difference 2

Answers

1. **C** - The common difference is 4, so the next term is $23 + 4 = 27$.
2. **D** - Divide each term by the one before: $8/2 = 4$. The differences 6, 24, 96 are not constant.
3. **A** - With $a_1 = 5$ and $d = 3$, $a_n = 5 + 3(n - 1) = 3n + 2$.
4. **B** - The terms are 1, 3, 5, 7, so $d = 2$ and $a_n = 1 + 2(n - 1) = 2n - 1$.
5. **A** - Each term is 3 less than the one before it.
6. **C** - $a_5 = 2 \cdot 3^4 = 2 \cdot 81 = 162$. Using 3^5 gives 486.
7. **A** - Only 4, 12, 36, 108 has a constant ratio of 3. The others have constant or changing differences.
8. **B** - The rule is $a_n = 3n + 1$, so Figure 6 has $3(6) + 1 = 19$ squares.
9. **D** - $a_4 = 500 \cdot 2^3 = 4,000$. Doubling 4 times instead of 3 times gives 8,000.
10. **B** - Each term is double the previous one, so the common ratio is 2.

Remember

- A sequence is a function whose inputs are the positions 1, 2, 3, and so on.
- Arithmetic: add d each time; $a_n = a_1 + (n - 1)d$.
- Geometric: multiply by r each time; $a_n = a_1 \cdot r^{(n-1)}$.
- A recursive rule gives each term from the previous term; an explicit rule gives any term directly.
- Arithmetic sequences are linear; geometric sequences are exponential.