Sequences

Name: _____ **Date:** _____



Mr Boston says: Some sequences are not arithmetic: square numbers 1, 4, 9, 16 … and Fibonacci 1, 1, 2, 3, 5, 8 … (add the two before).

A. Term-to-term rules

1 Next two terms: 7, 1, −5, −11, …

Answer: _____

2 Next two terms: −1, −4, −7, −10, …

Answer: _____

3 Next two terms: 0, −3, −6, −9, …

Answer: _____

4 Next two terms: 19, 13, 7, 1, …

Answer: _____

B. The nth term

5 Find the nth term of 7, 1, −5, −11, …

Answer: _____

6 Find the nth term of −1, −4, −7, −10, …

Answer: _____

7 Find the nth term of 0, −3, −6, −9, …

Answer: _____

8 Find the nth term of 19, 13, 7, 1, …

Answer: _____

C. Using the nth term and special sequences

9 The nth term is 6n − 1. Find the 20th term.

Answer: _____

10 The nth term is 50 − 3n. Find the 12th term.

Answer: _____

11 Is 100 in the sequence with nth term 4n + 2? Explain.

Answer: _____

12 Next two terms of 1, 4, 9, 16, …

Answer: _____

13 Next two terms of 1, 1, 2, 3, 5, 8, …

Answer: _____

14 Next two terms of 3, 6, 12, 24, ...

Answer: _____

Answers for grown-ups

Sequences

1. Next two terms: 7, 1, −5, −11, … → **−17, −23 (rule: subtract 6)**
2. Next two terms: −1, −4, −7, −10, … → **−13, −16 (rule: subtract 3)**
3. Next two terms: 0, −3, −6, −9, … → **−12, −15 (rule: subtract 3)**
4. Next two terms: 19, 13, 7, 1, … → **−5, −11 (rule: subtract 6)**
5. Find the nth term of 7, 1, −5, −11, … → **−6n + 13**
6. Find the nth term of −1, −4, −7, −10, … → **−3n + 2**
7. Find the nth term of 0, −3, −6, −9, … → **−3n + 3**
8. Find the nth term of 19, 13, 7, 1, … → **−6n + 25**
9. The nth term is 6n − 1. Find the 20th term. → **119**
10. The nth term is 50 − 3n. Find the 12th term. → **14**
11. Is 100 in the sequence with nth term 4n + 2? Explain. → **No: 4n + 2 = 100 gives n = 24.5, not a whole number**
12. Next two terms of 1, 4, 9, 16, … → **25, 36 (square numbers)**
13. Next two terms of 1, 1, 2, 3, 5, 8, … → **13, 21 (add the two before)**
14. Next two terms of 3, 6, 12, 24, … → **48, 96 (double)**