

Interleaved: sequences

ANSWERS

1

Find the n th term of 5, 9, 13, 17, ...

Which method? ☒ Linear ☐ Quadratic
☐ Geometric

the difference is 4 each time: $4n$, then
 $4n + 1$

Answer $4n + 1$

2

Find the next two terms of 3, 6, 12, 24, ...

Which method? ☐ Linear ☐ Quadratic
☒ Geometric

$\times 2$ each time

Answer 48, 96

3

Find the n th term of 2, 5, 10, 17, ...

Which method? ☐ Linear ☒ Quadratic
☐ Geometric

second difference 2, so n^2 ; what is left is 1

Answer $n^2 + 1$

4

Find the n th term of 20, 17, 14, 11, ...

Which method? ☒ Linear ☐ Quadratic
☐ Geometric

the difference is -3 : $-3n + 23$

Answer $23 - 3n$

5

Find the n th term of 3, 9, 19, 33, ...

Which method? ☐ Linear ☒ Quadratic
☐ Geometric

second difference 4, so $2n^2$; what is left is 1

Answer $2n^2 + 1$

6

Find the 7th term of 80, 40, 20, 10, ...

Which method? ☐ Linear ☐ Quadratic
☒ Geometric

$\div 2$ each time: 10, 5, 2.5, 1.25

Answer 1.25

7

Is 100 a term of 7, 13, 19, 25, ... Explain how you know.

Which method? ☒ Linear ☐ Quadratic
☐ Geometric

$6n + 1 = 100$ gives $n = 16.5$, not a whole number

Answer No

8

Find the 10th term of 4, 7, 12, 19, ...

Which method? ☐ Linear ☒ Quadratic
☐ Geometric

$n^2 + 3$, so $10^2 + 3$

Answer 103

Interleaved: sequences further practice

ANSWERS

9

Find the n th term of 2, 6, 18, 54, ...



first term 2, $\times 3$ each time

Answer $2 \times 3^{n-1}$

10

Find the n th term of 1, 6, 15, 28, ...



second difference 4: $2n^2$, what is left is -1 ,
 $-2, -3, -4$

Answer $2n^2 - n$

11

The 4th term of a linear sequence is 23. The 10th term is 47. Find the n th term.



6 steps add 24, so the difference is 4

Answer $4n + 7$

12

In a geometric sequence the 1st term is 4 and the 3rd term is 36. All the terms are positive. Find the 2nd term.



two steps multiply by 9, so the ratio is 3

Answer 12

13

Which term of 0, 3, 8, 15, ... is 99?



$n^2 - 1 = 99$, $n^2 = 100$

Answer the 10th

14

A floor pattern uses 6, 11, 16, 21 tiles in the first four patterns. How many tiles are in pattern 30?



$5n + 1$ with $n = 30$

Answer 151

15

The 2nd term of a geometric sequence is 10. The 3rd term is 50. Find the 1st term.



the ratio is $50 \div 10 = 5$, so $10 \div 5$

Answer 2

16

Mia says 1, 4, 9, 16, ... is geometric because the terms keep getting bigger by multiplying. Explain why she is wrong, and give the n th term.



$\times 4$ then $\times 2.25$: no common ratio.
The second difference is 2

Answer quadratic, n^2