



# **Determining $n$ th term of pattern or spatial pattern**

Mana Maths

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# Te reo Māori terms



**tauranga n**

nth term

Open in Te Aka

**panoni**

change

Open in Te Aka

**kaha**

constant

Open in Te Aka

**rōnaki**

gradient

Open in Te Aka

# Determining nth term of pattern or spatial pattern — Foundation

1. Find the nth term of 4, 7, 10, 13.
2. Find the nth term of 9, 13, 17, 21.
3. Find the nth term of 2, 6, 10, 14.
4. Find the nth term of 15, 20, 25, 30.
5. The nth term is  $3n + 1$ . Write term 6.
6. The nth term is  $4n - 2$ . Write term 8.
7. The nth term is  $5n + 3$ . Write term 10.
8. The nth term is  $2n + 9$ . Which term equals 25?
9. A tile pattern has totals 5, 8, 11, 14. Find the nth term and then write term 12.

**10.** A growing row has totals 7, 12, 17, 22. Find the  $n$ th term.

**11.** A border pattern has totals 6, 10, 14, 18. Which term has 34 tiles?

**12.** A stair pattern has totals 11, 15, 19, 23. Find the  $n$ th term and write term 9.

**13.** A student says the  $n$ th term of 3, 7, 11, 15 is  $4n$ . Is the student correct? If not, give the correct  $n$ th term.

**14.** A pattern follows 8, 11, 14, 17. Does 40 appear in the pattern? Explain using the  $n$ th term.

# Determining nth term of pattern or spatial pattern — Proficient

1. Find the nth term of  $-2, 1, 4, 7, 10$ .

2. Find the nth term of  $14, 19, 24, 29$ .

3. Find the nth term of  $0.5, 2.5, 4.5, 6.5$ .

4. Find the nth term of  $18, 15, 12, 9$ .

5. If the nth term is  $6n - 1$ , write term 15.

6. If the nth term is  $4n + 7$ , which term is 55?

7. Totals are  $7, 12, 17, 22$ . Find the nth term. Is 60 in the pattern?

8. A T-shape has totals  $4, 7, 10, 13$ . Find the nth term and term 20.

9. Matchsticks:  $6, 11, 16, 21$ . Which term has 71 matchsticks?

- 10.** A student says 5, 9, 13, 17 has  $n$ th term  $n + 4$ . Give the correct  $n$ th term.
- 11.** Totals are 9, 13, 17, 21. Find the  $n$ th term and the term number for 81.
- 12.** The 4th term is 19 and the 10th term is 43. Find the  $n$ th term.

# Determining nth term of pattern or spatial pattern— Excellence

1. Find the nth term of 3, 8, 13, 18, 23. Then write term 40.
2. Find the nth term of 20, 16, 12, 8, 4. Is  $-28$  a term?
3. Find the nth term of 1.5, 4.5, 7.5, 10.5. Then write term 25.
4. Totals are 5, 9, 13, 17. Find the nth term and the term number for 101.
5. Matchsticks: 12, 17, 22, 27. Find the nth term and term 50.
6. Pattern 4, 11, 18, 25: which term equals 116?
7. A student gives  $7n + 2$  for 2, 9, 16, 23. Give the correct nth term.
8. If the nth term is  $8n - 3$ , write three terms greater than 100.
9. The 3rd term is 17 and the 9th term is 47. Find the nth term.

- 10.** The 5th term is 27 and the 12th term is 55. Find the  $n$ th term.
- 11.** Totals are 10, 14, 18, 22. Give the  $n$ th term. Is term 200 possible?
- 12.** If the  $n$ th term is  $5n + 4$ , which term is 149? What about 150?
- 13.** If the  $n$ th term is  $3n - 8$ , find the first term greater than 70.
- 14.** The 1st term is 6 and the 8th term is 34. Find the  $n$ th term.
- 15.** Patterns  $4n + 1$  and  $3n + 9$ : find the first equal term.
- 16.** Make a pattern with  $n$ th term  $6n - 5$ . Write the first four terms and the term number for 73.