

1 Algebraic notation: multiplying

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Simplify

a) $2m \times (-3mn) \times 4n^2$

b) $(3x^2y)^3$

2 Term to term rules

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a) The first term is 5. The rule is subtract 3, then multiply by 2. Find the 4th term.

b) The rule is multiply by 3, then add k . The first two terms are 4 and 17. Find k and the 3rd term.

3 Square and triangular numbers

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The n th triangular number is $\frac{n(n+1)}{2}$.

a) Is 120 a triangular number? Show how you know.

b) Two triangular numbers next to each other add to 81. Find them.

4 Fibonacci type sequences

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Each term is the sum of the two terms before it.

a) The 1st term is 3 and the 4th term is 19. Find the 2nd and 3rd terms.

b) The 3rd term is 10 and the 5th term is 27. Find the first two terms.

Sequences

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5 The n th term of a linear sequence

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2.5, 4, 5.5, 7, ...

a) Find the n th term.

b) Explain why 80 is not a term in this sequence.

6 The n th term: using it

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a) Sequence A is $3n + 20$, sequence B is $8n - 15$.

Find the first term number where B is greater than A.

b) How many terms of $5n - 3$ are between 100 and 150?

7 The n th term of a quadratic sequence

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2, 7, 14, 23, 34, ...

a) Find the n th term.

b) Is 100 a term? Show how you know.

8 Types of sequences

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P 1, 8, 27, 64 Q 3, 4, 7, 11 R 80, 40, 20, 10

a) What type of sequence is each one?

b) A geometric sequence has 1st term 4 and 3rd term 36. Find both possible 2nd terms.