N2.2 Extending number patterns

Key idea | When you find the rule you can continue the sequence.

A1 Find the next 4 numbers in each sequence.

a 28, 23, 18, 13, 8, 3, −2

b 32, 43, 54, 65, 76, 87, 98

c 80, 66, 52, 39, 24, 10, −4

d −14, −6, 2, 10, 18, 26, 34

e 3, 3.5, 4, 4.5, 5, 5.5, 6

A2 Copy each sequence and fill in the missing numbers.

a 25, 38, 51, 64, 77, 90, 103, 116

b 43, 35, 27, 19 11, 3, −5, −13

c 33, 21, 9, −3, −15, −27, −39, −51

d 0.3, 0.8, 1.3, 1.8, 2.3, 2.8, 3.3, 3.8

A3 Write 5 numbers in a number sequence where the rule is

a add 7

b subtract 29

various answers

c subtract 0.1

d add 0.25

Write the rule for each sequence.

other answers possible

a 1, 4, 9, 16, 25, ... consecutive square numbers

b 1, 3, 6, 10, 15, ... consecutive triangular numbers

c 1, 3, 7, 13, 21, ... add consecutive even numbers

d 14, 24, 44, 74, 114, ... add consecutive multiples of 10

Find the next 4 numbers in each sequence in B1. (a) 36, 49, 64, 81
(b) 21, 28, 36, 45 (c) 31, 43, 57, 73 (d) 164, 224, 294, 374

Copy each sequence and fill in the missing numbers.

a 3, 5, 9, 15, 23, 33, 45, 59, ...

b 6, 11, 21, 36, 56, 81, 111, 146, ...

c –18, –16, –12, –6, 2, 12, 24, 38, ...

d 4.5, 5, 6, 7.5, 9.5, 12, 15, 18, 5...

Write 5 numbers in a sequence where the rule is

a subtract consecutive odd numbers various answers

b add 1.1

a Copy and complete this table.

Sequence	5	9	14	21	31	45
1st differences		4	5	7	10	14	19
2nd differences			1	2	3	4	5

b Use your table from **a** to find the next 2 numbers in the sequence. 64, 89