

Solutions

Marking: **M1** a correct method, **A1** the correct answer.

Each answer shows the steps, then the **result**.

2.1

- the common difference is 5, so the n th term starts $5n$; at $n = 1$, $5 \times 1 = 5$ and the term is 7

$$= 5n + 2$$

2.2

- each term is $\times 3$

$$324 \text{ and } 972$$

2.3

- each term is $\times 4$ and the first term is 3

$$= 3 \times 4^{n-1}$$

3.1

(a)

- first differences 7, 11, 15, 19 rise by 4, so the next is 23

$$54 + 23 = 77$$

(b)

- the second difference is 4, so the n^2 coefficient is $4 \div 2 = 2$
- subtract $2n^2$, i.e. 2, 8, 18, 32, 50, from the terms: 0, 1, 2, 3, 4
- that remainder is $n - 1$

$$= 2n^2 + n - 1$$

3.2

- the terms are 1^3 , 2^3 , 3^3 , 4^3

$$= n^3$$