**1** Write down the $n$th term of each sequence.

(a) $4, 7, 10, 13, \ldots$ (1)

(b) $6, 10, 14, 18, \ldots$ (1)

(c) $1, 6, 11, 16, \ldots$ (1)

(d) $8, 14, 20, 26, \ldots$ (1)

**(4 marks)**

**2** Write down the $n$th term of each sequence.

(a) $2, 5, 8, 11, \ldots$ (1)

(b) $9, 11, 13, 15, \ldots$ (1)

(c) $5, 9, 13, 17, \ldots$ (1)

(d) $12, 19, 26, 33, \ldots$ (1)

**(4 marks)**

**3** The $n$th term of a sequence is $6n + 4$.

(a) Write down the first three terms (1)

(b) Find the $15$th term (1)

(c) Find the $100$th term (1)

(d) Explain how you would find the $100$th term using only the term-to-term rule, and why nobody does it that way (2)

**(5 marks)**

**4** **Pattern $1$ is built for you.** To make the next pattern, **one cube is added to the end of the top row**. The two cubes hanging below are in every pattern.

**Build it with cubes, then check against the picture.**



Pattern 1

(a) Draw or build pattern $4$ and say how many cubes (1)

(b) Write down the $n$th term (1)

(c) How many cubes in pattern $30$? (1)

(d) Which two cubes are the $+2$? (2)

**(5 marks)**

**5** Match each sequence to its $n$th term rule.

A $3, 5, 7, 9$ B $3, 6, 9, 12$ C $3, 4, 5, 6$ D $3, 7, 11, 15$

P $n + 2$ Q $4n - 1$ R $3n$ S $2n + 1$

(a) A matches (1)

(b) B matches (1)

(c) C matches (1)

(d) D matches (1)

**(4 marks)**

**6** A pupil says the $n$th term of $5, 8, 11, 14$ is $n + 3$.

(a) Work out what $n + 3$ gives for the first four positions (1)

(b) Write down a position where the pupil's rule does not give the right term, and give both numbers (2)

(c) Write down the correct rule (1)

(d) Write down what the pupil confused (2)

**(6 marks)**