Write down the next two terms of each sequence, and state the term-to-term rule.

1 (a) $11,\ 13,\ 15,\ 17,\ \ldots$ (1)

(b) $1,\ 4,\ 7,\ 10,\ \ldots$ (1)

(c) $16,\ 12,\ 8,\ 4,\ \ldots$ (1)

(d) $49,\ 38,\ 27,\ 16,\ \ldots$ (1)

(4 marks)

2 (a) $1,\ 2,\ 4,\ 8,\ \ldots$ (1)

(b) $375,\ 75,\ 15,\ 3,\ \ldots$ (1)

(c) $1,\ -1,\ 1,\ -1,\ \ldots$ (1)

(d) $-4,\ 12,\ -36,\ 108,\ \ldots$ (1)

(4 marks)

In each of these, the first term and the term-to-term rule are given. Write down the next three terms.

3 (a) First term 4; rule: multiply by $\frac{1}{2}$ (1)

(b) First term $\frac{1}{6}$; rule: add $\frac{2}{3}$ (1)

(c) First term -2; rule: multiply by 3 and subtract 2 (1)

(3 marks)

4 (a) First term -32; rule: multiply by $-\frac{1}{4}$ (1)

(b) First term -16; rule: multiply by $\frac{1}{2}$ and add 2 (1)

(c) First term -5; rule: multiply by -1 (1)

(3 marks)

5 A sequence starts $7,\ 10,\ 13,\ 16,\ \ldots$

(a) Write down the term-to-term rule. (1)

(b) Write down the 7th term. (1)

(c) Explain why you cannot find the 7th term from the rule alone. (2)

(4 marks)