MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 23

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Describe in words the rule for 4, 9, 14, 19, ... (2)

> **Multiply the position number by 5, then subtract 1** ✓✓ (2)

2 Determine the general rule (T_n) for 4, 9, 14, 19, ... (3)

> $d = 5$, $c = 4 - 5 = -1 \rightarrow$ **$T_n = 5n - 1$** ✓✓✓ (3)

3 Determine the general rule for 7, 12, 17, 22, ... (2)

> $d = 5$, $c = 2 \rightarrow$ **$T_n = 5n + 2$** ✓✓ (2)

4 Determine the general rule for 6, 11, 16, 21, ... (2)

> $d = 5$, $c = 1 \rightarrow$ **$T_n = 5n + 1$** ✓✓ (2)

5 Determine the general rule for 30, 26, 22, 18, ... (2)

> $d = -4$, $c = 34 \rightarrow$ **$T_n = -4n + 34$** ✓✓ (2)

6 For $T_n = 4n + 3$, find the 10th term. (2)

> $4(10) + 3 =$ **43** ✓✓ (2)

7 For $T_n = 6n - 2$, find the 25th term. (2)

> $6(25) - 2 =$ **148** ✓✓ (2)

8 Which term of 5, 9, 13, ... equals 45? (2)

> $T_n = 4n + 1$; $4n + 1 = 45 \rightarrow n =$ **11th term** ✓✓ (2)

9 Is 100 a term of the pattern 3, 7, 11, ...? Show your working. (3)

> $T_n = 4n - 1$; $4n - 1 = 100 \rightarrow 4n = 101 \rightarrow n = 25{,}25$, not a whole number → **No** ✓✓✓ (3)

10 A pattern of matchsticks is 4, 7, 10, ... Determine a rule for the number of sticks in shape n. **(3)**

> $d = 3$, $c = 1 \rightarrow \mathbf{T_n = 3n + 1}$ ✓✓✓ **(3)**

TOTAL: 23 marks

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