WORKSHEET

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

Date: .....

MARK ____ / 29

Answer all questions. Show all your working — marks are awarded for method as well as the final answer.

1 The general term of an arithmetic sequence is $T_n = 2n + 4$. Determine T_{10}. **(1)**

2 Determine the sum of the first 19 terms of $T_n = 2n + 4$. **(3)**

3 Evaluate $\sum_{n=1}^{20} (3n - 1)$ **(3)**

4 How many terms are there in $\sum_{n=3}^{10} T_n$? **(1)**

5 Write $2 + 5 + 8 + \ldots + 59$ in sigma notation. **(3)**

6 Determine S_∞ for $8 + 4 + 2 + 1 + \ldots$ **(2)**

7 Determine the values of x for which $\sum 3(2x)^{n-1}$ converges. **(3)**

8 Calculate S_{10} for the geometric series $2 + 6 + 18 + \ldots$ **(3)**

9 Derive the formula $S_n = \frac{n}{2}(a + l)$ for an arithmetic series. **(4)**

10 Derive the formula for the sum of the first n terms of a geometric series. **(4)**

11 Explain why the sum to infinity only exists when $-1 < r < 1$. **(2)**

TOTAL: 29 marks

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