EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
29	45 minutes	3

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

Date: .....

MARK ____ / 29

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 For the pattern 5 ; 8 ; 11 ; 14 ; ... the rule is $T_n =$ ... (1)

A) $5n + 3$ **B)** $3n + 5$

C) $n + 3$ **D)** $3n + 2$

1.2 For $T_n = 3n + 2$, the 20th term is ... (1)

A) 23 **B)** 60

C) 62 **D)** 25

1.3 For $T_n = 3n + 2$, which term is equal to 92? (1)

A) 31 **B)** 30

C) 92 **D)** 29

1.4 The pattern 2 ; 4 ; 8 ; 16 ; ... is ... (1)

A) geometric, with a ratio of 2 **B)** linear, with a difference of 2

C) linear, with a difference of 4 **D)** neither

1.5 The next term of 1 ; 4 ; 9 ; 16 ; ... is ... (1)

A) 32 **B)** 24

C) 25 **D)** 20

1.6 A pattern has $T_n = -2n + 20$. The FIRST term is ... (1)

A) 18 **B)** 22

C) 20 **D)** -2

1.7 For $T_n = -2n + 20$, which is the FIRST term that is negative? (1)

A) the 11th **B)** the 9th

C) the 10th **D)** the 20th

1.8 A tile pattern is 3 ; 7 ; 11 ; 15 ; ... The number of tiles in the 25th pattern is ... (1)

A) 75 **B)** 103

C) 100 **D)** 99

1.9 The constant difference of a linear pattern tells you ... (1)

A) the first term **B)** the number of terms

C) the coefficient of n in the rule **D)** the constant in the rule

1.10 Which pattern has the rule $T_n = n^2 + 1$? (1)

A) 1 ; 4 ; 9 ; 16 **B)** 2 ; 5 ; 10 ; 17

C) 1 ; 2 ; 3 ; 4 **D)** 2 ; 4 ; 6 ; 8

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

1.1	A	B	C	D
1.2	A	B	C	D
1.3	A	B	C	D
1.4	A	B	C	D
1.5	A	B	C	D
1.6	A	B	C	D
1.7	A	B	C	D
1.8	A	B	C	D
1.9	A	B	C	D
1.10	A	B	C	D

QUESTION 2 [9 MARKS]

Answer the questions below on numeric patterns. Show ALL your working.

2.1 Determine the general rule for the pattern 7; 10; 13; 16; ... (3)

2.2 Determine the 100th term of the pattern 4; 7; 10; ... **(3)**

2.3 Which term of the pattern 5; 9; 13; ... is equal to 81? **(3)**

QUESTION 3 [10 MARKS]

Study the pattern of tiles below and answer the questions that follow.



Term 1
4 tiles

Term 2
7 tiles

Term 3
10 tiles

3.1 Write down the number of tiles in the first three patterns, and the constant difference. **(2)**

3.2 Determine the general rule in the form $T_n = ...$ **(3)**

3.3 Without drawing the figures, determine the number of tiles in the 20th pattern. **(2)**

3.4 If the terms of this pattern are plotted on a Cartesian plane, the points lie in a straight line. Explain why, and state why the points must NOT be joined. **(3)**

TOTAL: 29 marks

This question paper consists of 3 questions.

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