Patterning
Chapter Test

Name: _____

SCORE:

Part I: _____

Part II: _____

Part III: _____

Total: _____   Percentage: _____

Letter Grade:

_____

Part I: *(SHOW YOUR WORK)*

1. Here are the first five terms in a number pattern:

   7   10   13   16   19

(a)Find the 10th term in this number sequence.

....

(2)

(b) Write an expression, in terms of *n*, for the *n*th term of this number pattern.

....

(2)

(c) Find the 127th term of this pattern

....

(2)

2.A number sequence has nth term **6n + 3**

(a)   Write down the first four terms of this sequence.

1st term .... ………………………………,

2nd term ....,

3rd term ....,

4th term ....

(2)

(b) Sara says that 1008 is a term in this sequence. Is she correct or not? Explain your answer. (SHOW YOUR WORK)

....

....

....

(2)

3. A Pattern of numbers is shown below.

    1   5   9   13   17

    Find an expression for the nth term of the Pattern.
(a)

....

(2)

(b) Is 95 a term in this Pattern? Explain your answer.

....

....

....

....

....
(2)

4. The nth term of a pattern is given by **5n + 2**

(a) Find first 4 terms of the number pattern

   1st term ....,

   2nd term ....,

   3rd term ....,

   4th term ....,

....
(2)

5. Here are the first five terms of a number pattern.

| | | 11 | | 17 | | 23 |
| | | | | 29 | | |

(a) Find an expression for the

.

....

(2)

(b) Find the 109th term of this pattern

....

(2)

6. A Pattern of numbers is shown.

| 2 | 9 | 16 | 23 | 30 | | . |

(a)   Find an expression for the nth term of this pattern.

....

(2)

(b) Find the 100th term in the Pattern.

....

(2)

6. The *n*th term of a number pattern is **n² + 3**.

    (a)   Find the first four terms of this pattern.

               1st term ....,

               2nd term .... …………………………………….,

               3rd term ....,

               4th term ....,

                                                   ....
(2)

    (b)   Work out the difference between the 5th and 10th terms in the Pattern.

                                                   ....
(2)

7. The first 5 terms in a number Pattern are

10   7   4   1   -2   .   .   .

(a) write the expression for the nth term of the pattern

....

(2)

(b) Find the 500th term of the pattern.

....

(2)

8. Write the expression for the nth term of the following number pattern:

12   22   32   42   52   ...

....

(2)

9. The *n*th term of a pattern is **3n - 2**

(a)   Write down the first two terms of this Pattern.

1st term ....,

2nd term ....,

....
(2)

(b)   Which term of the Pattern is equal to 70?

....
(2)

(c)   Explain why 101 is not a term in the pattern.

....

....

....

....
(2)

10.Here are the *n*th terms of 4 patterns.

    Pattern 1:   nth term   **3n + 1**

    Pattern 2:   nth term   **5n + 10**

    Pattern 3:   nth term   **10n**

    Pattern 4:   nth term   **5n - 1**

For each sequence state whether the numbers in the sequence are

    A   Always multiples of 5

    S   Sometimes multiples of 5

    N   Never multiples of 5

Pattern 1 ....,

Pattern 2 ....,

Pattern 3 ....,

Pattern 4 ....,

(4)

11. The *n*th term of a pattern is 5 - 3n

Write down the t10th and the 100th terms of the Pattern.

10th term ....,

100th term ....,

....
(2)

12. The *n*th term of a sequence is 4n - 7

(a) Write down the first three terms of the sequence.

1st term ....,

2nd term ....,

3rd term ....,

....................**(2)**

(b) What is the difference between the
150th and 151st terms?

....

(1)

(c) The last term of this pattern is 393. How many terms are there in this sequence?

....

(2)

13. Find the nth term of the Pattern

(a) 1, 4, 9, 16, 25, ...

....

(1)

(b) 3, 6, 11, 18, 27, ...

....

(1)

(c) -3, 0, 5, 12, 21, ...

....

(1)

(d) 2, 8, 18, 32, 50, ...

....

(1)

14. The first 5 terms in a number pattern are

30	25	20	15	10	...

Write down the nth term of the pattern.

....

(2)

15. The first 5 terms in a number pattern are

2   8   14   20   26   ...

(a)   Work out the nth term of the pattern.

....
(2)

(b) Work out the 200th term of the pattern.

....
(2)

16. Martin has written the first 50 terms of the pattern with nth term 150 - 4n.

Find out which term is the first negative term.

....
(3)

17. The *n*th term of a number pattern is $(n + 1)(n + 3)$

Work out the first three terms of the sequence.

1st term ....,

2nd term ....,

3rd term ....

(3)