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

(a) Find an expression for the *n*th term of the Pattern.

.....

(2)

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

.....

.....

.....

.....

……

(2)

4. The *n*th 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 *n*th term of this pattern.

.....

(2)

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

.....

(2)

6. The *n*th term of a number pattern is $\mathbf{n^2 + 3}$.

(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 5^{th} and 10^{th} 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 *n*th term of the pattern

.....

(2)

(b) Find the 500^{th} 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.

10^{th} term .....,

100^{th} 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 150_{th} and 151_{st} 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 *n*th term of the pattern.

.....

(2)

15. The first 5 terms in a number pattern are

2 8 14 20 26 ...

(a) Work out the *n*th term of the pattern.

.....

(2)

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

.....

(2)

16. Martin has written the first 50 terms of the pattern with *n*th 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)