Exercise 1

1.1	Given: 3; 7; 11; 15;	1.2	Given: 0; 2; 6; 12;			
	a) Determine the <i>n</i> th term. terms.		a) Determine the next two			
	b) Calculate the 30th term.c) Which term is equal to 1 011?		b) Determine the <i>n</i>th term.c) Which term is equal to 1 980?			
1.3	Given: 7; 5; 3; 1;	1.4	Given: 6; 15; 28; 45;			
	a) Determine the general term. terms.		a) Determine the next two			
	b) Find the 100th term.c) Which term is equal to -3 999?		b) Determine the general term.c) Which term is equal to 561?			
1.5	Given: -8; -5; -2; 1.6		.6 Given: -2; -11; -26; -47;			
	a) Determine the <i>n</i> th term. terms.		a) Determine the next two			
	b) Calculate the 40th term.c) Which term is equal to 2 680?		b) Determine the general term.c) Which term is equal to -121			

Exercise 2

202?

- 2.1 Study the number pattern: 2; 18; 7; 12; 12; 6; 17;
 - a) Write down the next two terms of the pattern.
 - b) Determine term *n* for the terms in the odd positions.
 - c) Which term will be the first negative term of the pattern?
 - d) Determine the sum of the first four terms of the pattern.
 - 2.2 Consider the following quadratic number pattern: -7; 0; 9; 20; ...
 - a) Show that the general term of the quadratic number pattern is given by $T_n = n^2 + 4n 12$.
 - b) Which term of the quadratic pattern is equal to 128?
 - c) Determine the general term of the first differences.
 - d) Between which TWO terms of the quadratic pattern will the first difference be 599?

2.3 Grey and white squares are arranged into patterns as indicated below.

Pattern 1	Patte	rn 2		Pattern 3					
		Pattern 1	Patte]	Pattern 3				

The number of grey squares in the n^{th} pattern is given by $T_n = 2n^2 + 2n + 1$.

a) How many white squares will be in the FOURTH pattern?

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- b) Determine the number of white squares in the 157^{th} pattern.
- c) Calculate the largest value of n for which the pattern will have less than 613 grey squares.
- d) Show that the TOTAL number of squares in the n^{th} pattern is always an odd number.

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- 2.4 Given the quadratic sequence: -1; -7; -11; p; ...
 - a) Write down the value of *p*.

Number of grey squares

- b) Determine the *n*th term of the sequence.
- c) The first difference between two consecutive terms of the sequence is 96. Calculate the values of these two terms.