

- 2.1 Given the quadratic sequence:  $2 ; 3 ; 10 ; 23 ; \dots$
- 2.1.1 Write down the next term of the sequence. (1)
- 2.1.2 Determine the  $n^{\text{th}}$  term of the sequence. (4)
- 2.1.3 Calculate the  $20^{\text{th}}$  term of the sequence. (2)
- 2.2 Given the arithmetic sequence:  $35 ; 28 ; 21 ; \dots$
- Calculate which term of the sequence will have a value of  $-140$ . (3)
- 2.3 For which value of  $n$  will the sum of the first  $n$  terms of the arithmetic sequence in QUESTION 2.2 be equal to the  $n^{\text{th}}$  term of the quadratic sequence in QUESTION 2.1? (6)
- [16]**
- 2.1 Given the following quadratic number pattern:  $5 ; -4 ; -19 ; -40 ; \dots$
- 2.1.1 Determine the constant second difference of the sequence. (2)
- 2.1.2 Determine the  $n^{\text{th}}$  term ( $T_n$ ) of the pattern. (4)
- 2.1.3 Which term of the pattern will be equal to  $-25\,939$ ? (3)
- 2.2 The first three terms of an arithmetic sequence are  $2k - 7 ; k + 8$  and  $2k - 1$ .
- 2.2.1 Calculate the value of the  $15^{\text{th}}$  term of the sequence. (5)