**QUADRATIC PATTERNS : EXAM TYPE QUESTIONS**

A quadratic pattern has a second term equal to 1, a third term equal to – 6 and a fifth term equal to – 14.

1.1 Calculate the second difference of this quadratic pattern. (5)

1.2 Hence, or otherwise, calculate the first term of the pattern. (2)

 **[7]**

**SOLUTION:**

**1.1 \_\_\_\_\_** 1 -6 -14

 **\_\_\_ -7 -8 First difference**

 \_\_\_ -1 **Second difference**

**1.2 Now** ,fill in the gaps in retrospect(backwards)

 **\_\_5\_\_\_** 1 -6 -14

 **\_-6\_\_ -7 -8 First difference**

 \_-1\_\_ -1 **Second difference**

**EXERCISE**

**The following sequence of numbers forms a quadratic sequence:**

**– 3 ; – 2 ; – 3 ; – 6 ; – 11 ; …**

* 1. **The first differences of the above sequence also form a sequence. Determine an**

**expression for the general term of the first differences. (3)**

* 1. **Calculate the first difference between the 35th and 36th terms of the quadratic**

**sequence. (2)**

**4.3 Determine an expression for the nth term of the quadratic sequence. (4)**

**4.4 Explain why the sequence of numbers will never contain a positive term. (2)**