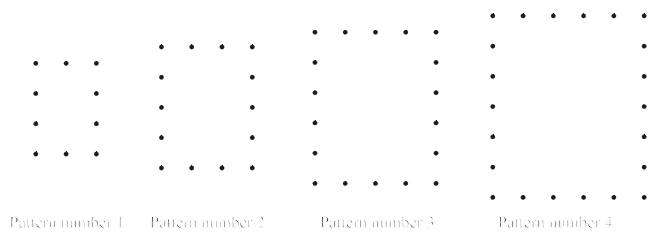


1. On the right are four patterns in which dotted lines outline rectangles.

Write down a formula for the number of dots,  $d$ , in terms of the Pattern number,  $n$ .

..... (2)



2. Here are the first four terms of an arithmetic sequence.

-3, 1, 5, 9

(a) Find, in terms of  $n$ , an expression for the  $n$ th term of this sequence. .... (2)

In another arithmetic sequence the  $n$ th term is  $8n - 16$

Alice says that there is a number that is in both sequences.

(b) Explain why Alice is wrong. ....  
 ....  
 .... (4)

3. Here are six different number sequences.

For each sequence, write in the next two terms and then explain how you found them.

(a) 0, 1, 4, 9, 16, \_\_, \_\_ ..... (2)

(b) 1, 3, 6, 10, \_\_, \_\_ ..... (2)

(c) 0, 1, 1, 2, 3, 5, \_\_, \_\_ ..... (2)

(d) 10, 11, 14, 19, 26, \_\_, \_\_ ..... (2)

(e) 10, 30, 60, 100, 150, \_\_, \_\_ ..... (2)

(f) 0, 3, 3, 5, 7, 11, 17, \_\_, \_\_ ..... (2)