



Diagram Sequences



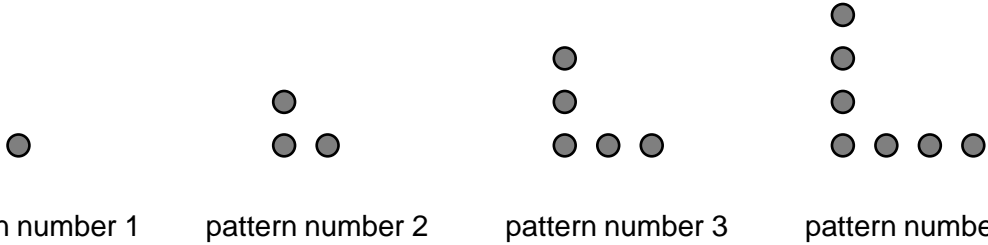
SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 Here is a sequence of patterns made with counters.



1 (a) Write down the number of counters needed for pattern number 5. [1 mark]

Answer _____

1 (b) Find an expression, in terms of n , for the number of counters in pattern n . [2 marks]

Answer _____

1 (c) Work out the number of counters in pattern number 50 [2 marks]

Answer _____





2 Here is a sequence of patterns made with sticks.



pattern number 1



pattern number 2



pattern number 3



pattern number 4

2 (a) Write down the number of sticks needed for pattern number 5. [1 mark]

Answer _____

2 (b) Find an expression, in terms of n , for the number of sticks in pattern n . [2 marks]

Answer _____

2 (c) Work out the number of sticks in pattern number 100 [2 marks]

Answer _____

2 (d) Jamie has 61 sticks.
He can make one of the patterns in the sequence using all of his sticks.
Work out the pattern number that Jamie can making using all of his sticks. [2 marks]

Answer _____

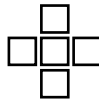




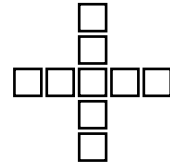
3 Here is a sequence of patterns made with squares.



pattern number 1



pattern number 2



pattern number 3

3 (a) Write down the number of squares needed for pattern number 4. [1 mark]

Answer _____

3 (b) Find an expression, in terms of n , for the number of squares in pattern n . [2 marks]

Answer _____

3 (c) Work out the number of squares in pattern number 30 [2 marks]

Answer _____

3 (d) Lauren makes a pattern from the sequence using 57 squares. Work out the pattern number that Lauren makes. [2 marks]

Answer _____

Turn over ►





4 Here is a sequence of patterns made with sticks.



pattern number 1



pattern number 2



pattern number 3



pattern number 4

4 (a) Write down the number of sticks needed for pattern number 6. [1 mark]

Answer _____

4 (b) Find an expression, in terms of n , for the number of sticks in pattern n . [2 marks]

Answer _____

4 (c) Work out the number of sticks in pattern number 60 [2 marks]

Answer _____

4 (d) Harriet has 91 sticks.
Show that it is not possible for Harriet to make a pattern from the sequence using **all** of her sticks. [2 marks]

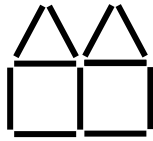




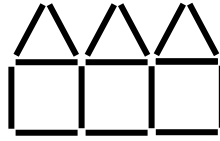
5 Here is a sequence of patterns made with sticks.



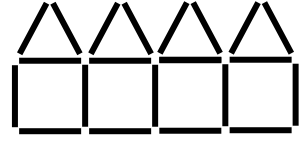
pattern number 1



pattern number 2



pattern number 3



pattern number 4

5 (a) Write down the number of sticks needed for pattern number 5. [1 mark]

Answer _____

5 (b) Find an expression, in terms of n , for the number of sticks in pattern n . [2 marks]

Answer _____

5 (c) Work out the number of sticks in pattern number 1000 [2 marks]

Answer _____

5 (d) Mo has 69 sticks.
He uses as many of his sticks as possible to make a pattern from the sequence.
Work out the of extra sticks Mo has after making this pattern. [2 marks]

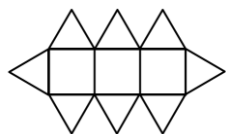
Answer _____

Turn over ►

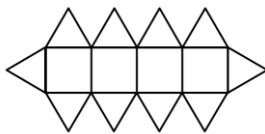




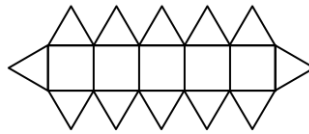
6 Here is a sequence of patterns made with triangles and squares.



pattern number 1



pattern number 2



pattern number 3

6 (a) Write down the number of **triangles** needed for pattern number 4. [1 mark]

Answer _____

6 (b) Write down the number of **squares** needed for pattern number 4. [1 mark]

Answer _____

6 (c) Find an expression, in terms of n , for the number of **triangles** in pattern n . [2 marks]

Answer _____

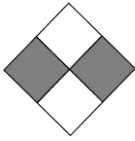
6 (d) One of the patterns in the sequence uses 68 **triangles**.
Work out the number of **squares** that are in this pattern. [3 marks]

Answer _____

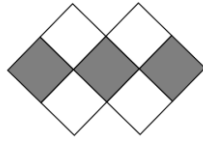




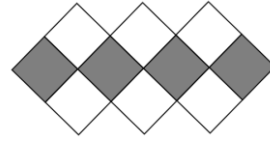
7 Here is a sequence of patterns made with grey and white squares.



pattern number 1



pattern number 2



pattern number 3

7 (a) Write down the number of **white** squares needed for pattern number 4. [1 mark]

Answer _____

7 (b) Write down the number of **grey** squares needed for pattern number 4. [1 mark]

Answer _____

7 (c) Find an expression, in terms of n , for the number of **squares** in pattern n . [2 marks]

Answer _____

7 (d) One of the patterns in the sequence uses 55 **grey** squares. Work out the number of **white** squares that are in this pattern. [3 marks]

Answer _____

