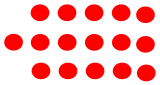
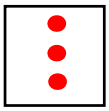
Name: _____

Patterns and sequences 1: Solutions

Objective: To be able to find the general rule for a pattern/number sequence

Step by step instructions

Position Number	1	2	3	4	5
Pattern					
Terms	4	7	10	13	16
Working out	3	6	9	12	15



(a) In the box, draw the shape that is added on each time

(b) Complete the missing pattern and terms

(c) What do you add on each time? 3
(this is the term to term rule)

(d) Which multiplication table has the same adding on pattern? 3

(e) Fill in this multiplication table in the working out boxes

(f) What do you need to do to make your working out boxes into the terms? Add 1

(g) Use the information from (d) and (f) to form a general rule linking position number (N) and number of dots: 3N + 1

(h) Use your rule to find the 100th term: 301

Write any revision hints, notes or reminders to yourself here:

Name: _____

Patterns and sequences 2

Objective: To be able to find the general rule for a pattern/number sequence

Structured question

Position Number	1	2	3	4	5
Terms	3	8	13	18	23
Working out	5	10	15	20	25

(a) Complete the missing pattern and terms
(b) What do you add on each time? 5
(this is the term to term rule)
(c) Use part (b) to help fill in the multiplication table in the working out boxes
(d) What do you need to do to make your working out boxes into the terms? Minus 2
(e) Use the information from (b) and (e) to form a general rule linking position number (N) and number of dots: 5N - 2
(f) What is the 100^{th} term? 498

Use this structure to find the general rule (Nth term) for the following sequence:

Position Number	1	2	3	4	5	6	7
Terms	11	17	23	29	35	41	47
Working out	6	12	18	24	30	36	42

Rule: 6N+5

Name: _____

Patterns and sequences 3

Objective: To be able to find the general rule for a pattern/number sequence

Structured question

Position Number	1	2	3	4	5
Terms	27	35	43	51	59
Working out	8	16	24	32	40

(a) Complete the missing pattern and terms
(b) What do you add on each time? 8 (this is the term to term rule)
(c) Use part (b) to help fill in the multiplication table in the working out boxes
(d) What is the general rule? 8N + 19
(e) What is the 100th term? 819
(f) Explain whether or not 87 is in this sequence:
8N + 19 = 87
8N = 68 and 8 isn't a factor of 68, so not in the sequence

For the following questions:

(i) Find the general rule (Nth term)

(ii) Find the 100th term

(ii) State whether 50 is in the sequence

(a) 2, 15, 28, 41 …	13N – 11	1289	No
(b) 112, 102, 92, 82, 72 …	122 - 10N	-878	No
(c) 5.9, 6.8, 7.7, 8.6, 9.5 …	0.9N + 5	95	Yes
(d) -8, -1, 6, 13, 20 …	7N – 15	685	No