SEQUENCES

Sequences

Write down the first FIVE numbers in each of these sequences.

1) The sequences starts with 7. The rule is add 2.

2) The sequences starts with 8. The rule is add 6.

3) The sequences starts with 3. The rule is add 7.

4) The sequences starts with 20. The rule is take 3.

5) The sequences starts with 15. The rule is take 4.

Write down the next two terms of these sequences and their rule.

6) 8, 12, 16, 20. ___, ___ The rule is

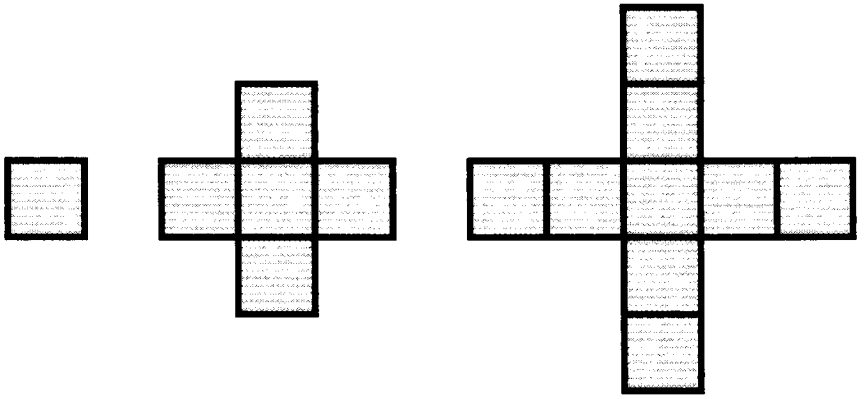
7) 5, 12, 19, 26. ___, ___ The rule is

8) 2.5, 3.5, 4.5, 5.5. ___, ___ The rule is

9) 21, 19, 17, 15. ___, ___ The rule is

10) 24, 17, 10, 3 ___, ___ The rule is

Use these drawings for questions 11 to 14



11) Write down the sequence from the drawings. ___, ___, ___, ___, ___

12) What is the rule for the sequence?

13) What is the tenth number in this sequence?

14) The number 25 is the sequence. Which term is it?

Use these drawings for questions 15 to 18

15) Write down the sequence from the drawings. ___, ___, ___, ___, ___

16) What is the rule for the sequence?

17) What is the tenth number in this sequence?

18) The number 17 is the sequence. Which term is it?

Sequences

Qu. 1 n^{th} term rule **3n + 1** 3 x the position + 1

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term	3 x **1** + 1	3 x **2** + 1	3 x **3** + 1	3 x **4** + 1	3 x **5** + 1	3 x **10** + 1

term to term rule

Qu. 2 n^{th} term rule **4n - 1** 4 x the position - 1

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term	4 x **1** - 1	4 x **2** - 1	4 x **3** - 1	4 x **4** - 1	4 x **5** - 1	4 x **10** - 1

term to term rule

Qu. 3 n^{th} term rule **2n + 3** 2 x the position + 3

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term	2 x __ + 3	2 x __ + 3	2 x __ + 3	2 x __ + 3	2 x __ + 3	2 x __ + 3

term to term rule

Qu. 4 n^{th} term rule **5n - 2** 5 x the position - 2

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term	5 x __ - 2	5 x __ - 2	5 x __ - 2	5 x __ - 2	5 x __ - 2	5 x __ - 2

term to term rule

Qu. 5 n^{th} term rule **4n + 3** 4 x the position + 3

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term						

term to term rule

Qu. 6 n^{th} term rule **24 - 2n** 24 - 2 x the position

Remember !! Times before take

position	1st term	2nd term	3rd term	4th term	5th term	10th term
	n = 1	n = 2	n = 3	n = 4	n = 5	n = 10
term	24 - 2 x **1**	24 - 2 x **2**				
	24 - 2	24 - 4				
	22	20				

term to term rule

1 4, 9, 14, 19.....

The term to term rule is

The nth term rule is

The 20th term is

2 20, 16, 12, 8 .....

The term to term rule is

The nth term rule is

The 20th term is

3 The rule for a sequence is 2n -3.

Write down the first five terms of the sequence.

What is the 20th term of this sequence?

Is 64 in this sequence?

4 7, 11, 15, 19 .....

The term to term rule is

The nth term rule is

The 20th term is

5 The rule for a sequence is 4n + 3.

Write down the first five terms of the sequence.

What is the 20th term of this sequence?

Is 64 in this sequence?

6 The rule for a sequence is 24 - 2n.

Write down the first five terms of the sequence.

What is the 20th term of this sequence?

Is -64 in this sequence?

Sequences

Write down the first FIVE terms and the 10th for each of these sequences.

1) $4n + 3$

2) $2n + 7$

3) $10 - n$

4) $24 - 2n$

5) $3n - 2$

Write down the "by position" or nth term rule for these sequences.

6) 3, 5, 7, 9, 11

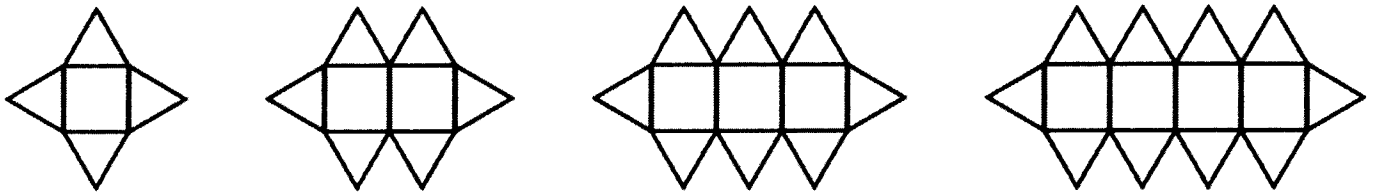
7) 6, 10, 14, 18, 22

8) 2, 5, 8, 11, 14

9) 21, 19, 17, 15, 13

10) 30, 27, 24, 21, 18

11)



Pattern number (n)	1	2	3	4	5	6
Squares	1	2	3	4	5	6
Triangles	4	6	8	10	12	14

Find the rule for the rule for the number of triangles given the pattern number (n)

How many triangles in the 20th drawing?

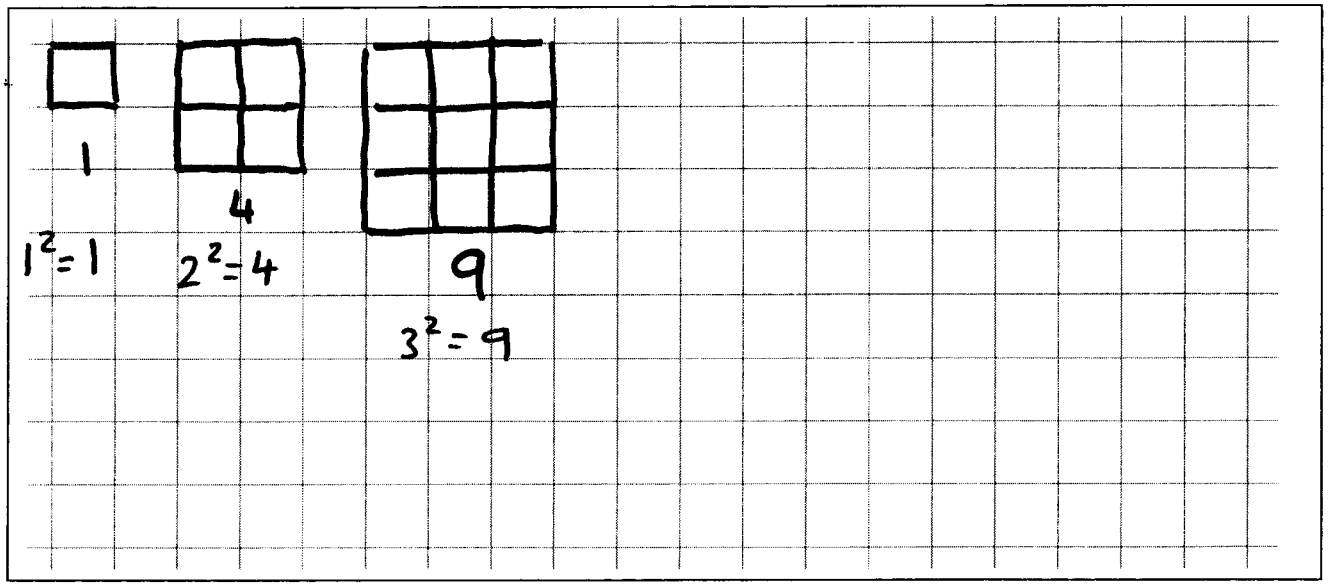
12) Here are the first five terms of a sequence.

8 11 14 17 20

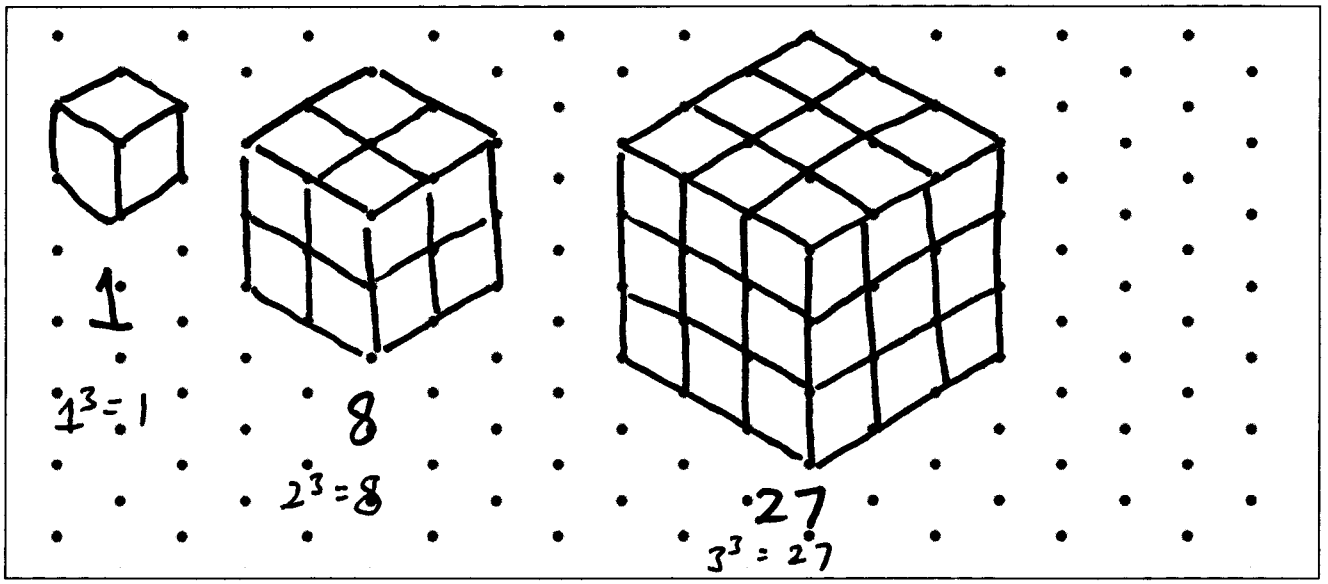
Work out the 11th term of the sequence. Explain how you worked out your answer.

Complete the sequences

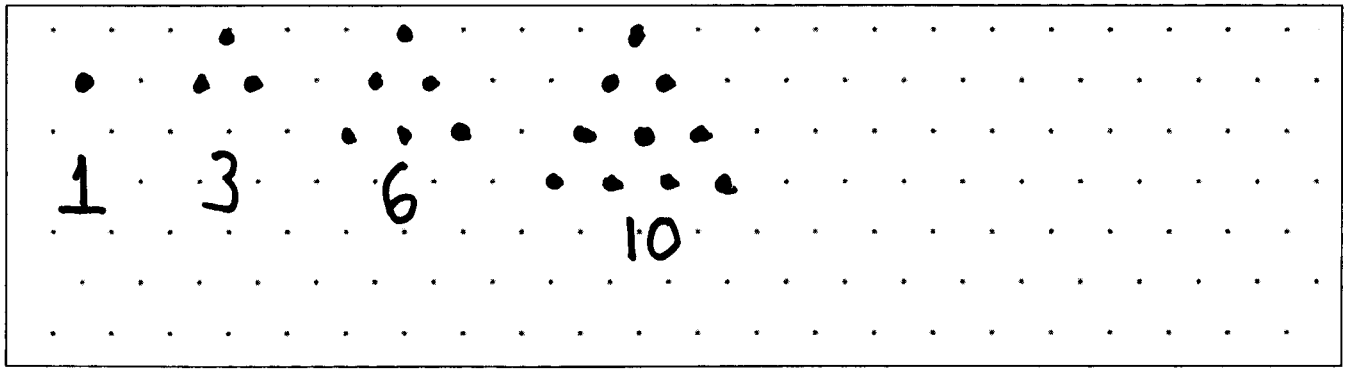
SQUARE NUMBERS 1, 4, 9, 16, —, —, —, —, —



CUBE NUMBERS 1, 8, 27, —, —, —, —, —, —, —



TRIANGULAR NUMBERS 1, 3, 6, 10, —, —, —, —, —, —



Fibonacci Add the last two terms to make the next one. For example 1, 1, 2, 3, 5, ____, ____, ____, ____, ____

Geometric Sequence One term is multiplied by a fixed number to make the next term. E.g. 1, 2, 4, 8 , 16 , 32, ____

Write down the first FIVE terms for these Quadratic Sequences

$n^2 + 2n + 1$ $2n^2 - 3$ $n^2 - 3n + 4$

Find the nth term rule for this quadratic sequence 2, 6, 12, 20, 30

Find the rules for these quadratic sequences.

Qu. 1

n	1	2	3	4	5
term	2	8	16	26	38

Qu. 2

n	1	2	3	4	5
term	7	17	31	49	71

Qu. 3

n	1	2	3	4	5
term	9	17	31	51	77

Qu. 4

n	1	2	3	4	5
term	8	30	62	104	156

Qu. 5

n	1	2	3	4	5
term	6	24	52	90	138

Qu. 6

n	1	2	3	4	5
term	11	15	15	11	3

Qu. 7

n	1	2	3	4	5
term	12	26	44	66	92

Qu. 8

n	1	2	3	4	5
term	3	6	13	24	39

Qu. 9

n	1	2	3	4	5
term	6	17	34	57	86