Match the corresponding terms:

$2n^2$ 2 xn xn

$\frac{n}{2}$ $n \div 2$

2 + n add 2 onto n

2n 2xn

Completing a sequence

What are the next 3 terms of these sequences?

1) 2, 4, 6, 8...

2) 5, 7, 9, 11...

3) 101, 98, 95, 92.. 89, 86, 83...

4) 10, 7, 4, 1, ... -2, -5, -8....

5) 1, 4, 9, 16, 25... 36, 49, 64

6) 1, 1, 2, 3, 5, 8... 13, 21, 34....

7) 1, 3, 6, 10, 15... 21, 28, 36...

+2 +3 +4

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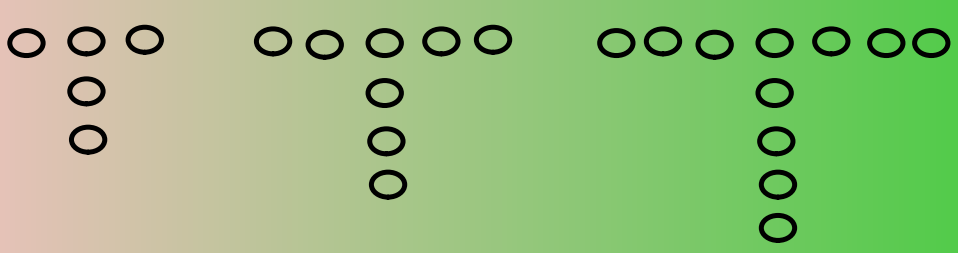
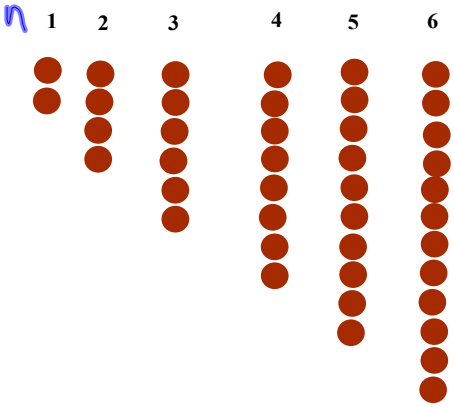
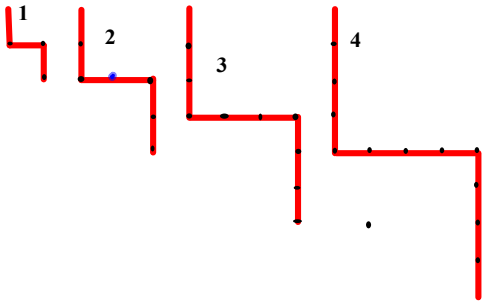


Picture Sequences





n	1	2
no of matches used		

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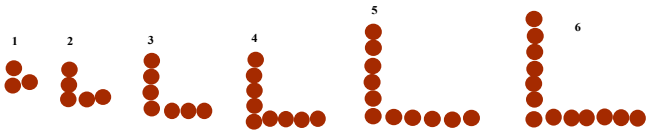

n	
no of dots	

Making the rules

n	1	2	3	4	5	6
2n	2	4	6	8	10	12
10n	10	20	30	40	50	60
9n	9	18	27	36	45	54
12n−6	6,	18,	30,	42,	54,	66
5n+5	10,	15,	20,	25,	30,	35

The rule is:

5n

Generating sequences

n	1	2	3	4	5	6	7	8	9	10	11	
2n	2	4	6	8	10	12	14	16	18	20	22	
2n+1	3	5	7	9	11	13	15	17	19	21	23	
n-1	0	1	2	3	4	5	6	7	8	9	10	
3n	3	6	9	12	15	18	21	24	27	30	33	
3n+2	5	8	11	14	17	20	23	26	29	32	35	

Finding rules

n	1	2	3	4	5	6	7	8	9
2n	2	4	6	8	10	12	14	16	18
n-1	0	1	2	3	4	5	6	7	8
2n+1	3	5	7	9	11	13	15	17	19
5n	5	10	15	20	25	30	35	40	45
4n-1	3	7	11	15	19	23	27	31	35

4 8 12 16 20

How to find the rule for a sequence

Look at the first 5 terms of sequence.
Work out the difference between each term
If the difference is always the same your rule begins: difference x n.
Compare your sequence with that one.
Example:

5, 7, 9, 11, 13...

Difference is always 2, so the rule begins 2n.

compare 5, 7, 9, 11, 13...
with 2n: 2, 4, 6, 8, 10....

You need to add 3 each time
So the rule is 2n + 3.

Worksheet.

Eg: 5,7,9,11,13....

3,7,11,15,19,23.....

9, 11, 13, 15, 17.....

n	1	2	3	4	5	
	5,	8,	11,	14,	17	3n+2
3n	3,	6,	9,	12,	15	

n	1	2	3	4	5	
	7	9	11	13	15	2n+5
2n	2	4	6	8	10	
	9,	19,	29,	39,	49	10n-1
10n	10,	20,	30,	40,	50,	60, 70

Generating a sequence.

Write down the first 5 terms of each sequence with the rule:

$5n$: 5, 10, 15, 20, 25

$4n - 1$: 4−1, 3, 7, 11, 15, 19

$2n - 6$: −4, −2, 0, 2, 4...

2 − 6 = −4

4 − 6 = −2

$9n$: 9, 18, 27, 36, 45

$3n + 7$: 10, 13, 16, 19, 22...

write down the 100th term

Making Rules

Find the rule for each of these sequences, and find the 20th term.

$2n$ 2, 4, 6, 8, 10...

2n 2 4 6 8 10
2n+1 3, 5, 7, 9, 11, ... +1

$3n$ 3, 6, 9, 12, 15....

4 8 12 16 20 +1
4n+1 5, 9, 13, 17, 21....

5	10	15	20	25		
25	30	35	40	45	50	....
6	12	18	24	30		-10
-4	2	8	14	20	26	....
7	14	21	28			
1	8	15	22	29	36	....

$5n+20$

$6n-10$

$7n-6$

make up a sequence using a rule and swop with your neighbour

Some important sequences.

Write down the first 5 terms of sequences that have these rules:

1. n
2. $2n$
3. $2n-1$
4. $10n$
5. n^2