



## Sequences puzzles



### What do mathematicians do?

“Mathematics is the science of patterns, and nature exploits just about every pattern there is.”

Ian Stewart

“Doing mathematics should mean finding patterns and beautiful and meaningful explanations.”

Paul Lockhart

“A mathematician, like a painter or a poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas”

G. H. Hardy

### 1. Can you find the next term for these sequence?

(a), 4, 16, 64, 256, ...

(b), 45, 41, 37, 33, ...

(c), 99, 92, 86, 81, 77, ...

(d), 1, 2, 6, 24, 120, ...

(e), 1, 1, 2, 3, 5, 8, ...

(f), 3, 9, 27, 81, 243, ...

### 2. Can you find the next term for these sequence?

(a), 1, 11, 21, 1211, 111221, 312211, ...

(b), O, T, T, F, F, S, ...

(c), M, V, E, M, J, ...



3. Below are 2 terms in some sequences. Have a guess at the rule, then your teacher will reveal the next number. See how quickly you can guess the rule!

(a)

4	7	2	5	10	-1	0	1
15	127						

Rule.....

(b)

10	1	6	12	8	0	3	13
4	1						

Rule.....

(c)

4	1	2	8	18	5	100	7
4	3						

Rule.....

(d)

1	2	3	5	8	12	17	20
1	2						

Rule.....

(e)

4	11	-1	8	2	0	3	9
1	15						

Rule.....

(f)

2	4	7	3	9	5	10	1
10	1000						

Rule.....