TARGET To generate and describe number sequences.

Examples

					The rule is:	The *n*th term is:
To find the rule that	4	7	10	13	add 3	$n + 3$
links the numbers	1	6	11	16	add 5	$5n - 4$
study the gaps.	0·2	0·4	0·6	0·8	add 0·2	$\frac{n}{5}$ or $\frac{2n}{10}$

A

Write the first six numbers in each sequence.

	Start at	Rule		Start at	Rule		Start at	Rule
1	10	+20	6	6·5	−0·5	11	1	×2
2	0·1	+0·2	7	3	−1	12	2	$-\frac{1}{4}$
3	−8	+2	8	−20	+5	13	158	−21
4	44	−3	9	50	+99	14	10	−4
5	2	$+\frac{1}{2}$	10	0·25	+0·25	15	0·74	−0·01

B

Copy and complete. Write the rule.

1. 5·4 5·1 4·8 4·5 ☐ ☐ ☐
2. −5 −4 −3 −2 ☐ ☐ ☐
3. 1000 920 840 760 ☐ ☐ ☐
4. 1·9 3·8 5·7 7·6 ☐ ☐ ☐
5. ☐ ☐ ☐ $1\frac{1}{3}$ $1\frac{2}{3}$ 2 $2\frac{1}{3}$
6. ☐ ☐ ☐ 3 8 13 18
7. ☐ ☐ ☐ 1·7 1·62 1·54 1·46
8. ☐ ☐ ☐ 125 150 175 200

Write the first 6 terms.

9. *n*th term = $2n + 1$
10. *n*th term = $5n - 20$
11. *n*th term = $3 - n$
12. *n*th term = $10 - 2n$
13. *n*th term = $\frac{5n}{2}$
14. *n*th term = $3n - 1$
15. *n*th term = $\frac{n}{5} + 0·2$
16. *n*th term = $4 - 3n$

C

Write the next 4 numbers and the rule for the *n*th term.

1. 19 26 33 40
2. 10 8·75 7·5 6·25
3. $\frac{3}{5}$ $1\frac{1}{5}$ $1\frac{4}{5}$ $2\frac{2}{5}$
4. 7·7 7 6·3 5·6
5. 50 38 26 14
6. 0·75 1·5 2·25 3
7. $\frac{5}{8}$ $1\frac{1}{4}$ $1\frac{7}{8}$ $2\frac{1}{2}$
8. 1·0 0·99 0·98 0·97
9. −17 −13 −9 −5
10. $\frac{1}{2}$ $1\frac{3}{4}$ 3 $4\frac{1}{4}$
11. 1 0·85 0·7 0·55
12. 10 8·25 6·5 4·75

Write the first 6 numbers.

13. *n*th term = $10 - 3n$
14. *n*th term = $\frac{2n}{3}$
15. *n*th term = $n^2 + 1$
16. *n*th term = $\frac{n}{4} - 0·1$
17. *n*th term = $n^2 - n$
18. *n*th term = $4·5 - \frac{3n}{2}$

TARGET To generate and describe number sequences.

Examples

−3 −1 1 3 5 7

The rule is add 2.
The *n*th term is $2n - 5$.

Write the first six terms.

$20 - 4n$	16	12	8	4	0	−4
$3n + 1$	4	7	10	13	16	19
$\frac{2n}{10}$	0·2	0·4	0·6	0·8	1·0	1·2

A

Write the first six numbers in each sequence.

	Start at	Rule
1	57	+9
2	$2\frac{1}{2}$	$-\frac{1}{4}$
3	3	+0·5
4	150	−20
5	−10	+3
6	10	−4

Complete each sequence.

7. 1·5 1·75 2 ☐ ☐
8. $\frac{1}{2}$ ☐ $1\frac{1}{2}$ ☐ $2\frac{1}{2}$
9. −6 −4 −2 ☐ ☐
10. 2 4 6 ☐ ☐
11. 100 ☐ 302 403 ☐
12. ☐ 68 56 44 ☐

3 6 9 12 15 18

Look at the above pattern. Write down:

13. the 7th term
14. the 11th term
15. the 20th term
16. a rule for the *n*th term.

B

Fill in the boxes. Give the rule for the *n*th term.

1. −12 −7 −2 ☐ ☐
2. 0·1 0·4 0·7 ☐ ☐
3. $\frac{1}{4}$ ☐ $\frac{3}{4}$ ☐ $1\frac{1}{4}$ ☐
4. −1 −3 ☐ ☐ −9 ☐
5. 4 ☐ 42 61 80
6. 38 28 18 8 ☐ ☐

Write the first six terms for each sequence.

7. $7 - 2n$
8. $\frac{2n}{6}$
9. $n - 5$
10. $3n + 2$
11. $\frac{5n}{10}$
12. $4 - 2n$

Look at the pattern of beads. What colour is:

13. the 15th bead
14. the 33rd bead
15. the 50th bead
16. the 100th bead?

C

Write the next 3 numbers. Give the rule for the *n*th term.

1. 2·75 3·8 4·85 5·9
2. 200 178 156 134
3. 10 7 4 1
4. 100 81 64 49
5. 1 $1\frac{3}{5}$ $2\frac{1}{5}$ $2\frac{4}{5}$
6. 6·7 5·2 3·7 2·2

Write down a formula for the *n*th term of each pattern.

7. 11 22 33 44 55
8. 4 7 10 13 16
9. −5 −10 −15 −20 −25
10. −1 −3 −5 −7 −9
11. 0·1 0·6 1·1 1·6
12. $1\frac{1}{3}$ $2\frac{2}{3}$ 4 $5\frac{1}{3}$

Look at the pattern of beads. What colour is:

13. the 20th bead
14. the 50th bead
15. the 80th bead
16. the 100th bead?