

TARGET To generate and describe number sequences.

Examples

To find the rule that links the numbers study the gaps.

1	3	5	7
3	0	-3	-6
$\frac{4}{9}$	$\frac{8}{9}$	$1\frac{3}{9}$	$1\frac{7}{9}$

The rule is:

- add 2
- subtract 3
- add $\frac{4}{9}$

The n th term is:

$$2n - 1$$

$$6 - 3n$$

$$\frac{4n}{9}$$

A

Write the first six numbers in each sequence.

	Start at	Rule		Start at	Rule		Start at	Rule
1	4	+10	6	65	-7	11	26	+9
2	38	-2	7	15	+20	12	30	-3
3	7	+3	8	110	-11	13	$\frac{1}{2}$	$+\frac{1}{2}$
4	29	-4	9	-21	+2	14	80	-5
5	0.5	+1	10	948	-101	15	25	+25

B

Complete these sequences by filling in the boxes. Write the rule each time.

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|----|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|--|
| 1 | 44 | 47 | 50 | 53 | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| 2 | 89 | 85 | 81 | 77 | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| 3 | 115 | 140 | 165 | 190 | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| 4 | 0.5 | 0.6 | 0.7 | 0.8 | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| 5 | -2 | -4 | -6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | -14 | | |
| 6 | 119 | 114 | <input type="text"/> | <input type="text"/> | <input type="text"/> | 94 | 89 | | |
| 7 | -9 | -6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | 6 | 9 | | |
| 8 | $\frac{1}{5}$ | $\frac{2}{5}$ | $\frac{3}{5}$ | $\frac{4}{5}$ | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| 9 | 5 | 3 | 1 | <input type="text"/> | <input type="text"/> | <input type="text"/> | -7 | | |
| 10 | 37 | <input type="text"/> | 55 | <input type="text"/> | 73 | <input type="text"/> | 91 | | |
| 11 | 366 | 316 | <input type="text"/> | 216 | <input type="text"/> | <input type="text"/> | 66 | | |
| 12 | <input type="text"/> | -15 | -10 | <input type="text"/> | <input type="text"/> | 5 | 10 | | |
| 13 | $1\frac{6}{7}$ | <input type="text"/> | $1\frac{2}{7}$ | 1 | <input type="text"/> | <input type="text"/> | $\frac{1}{7}$ | | |
| 14 | <input type="text"/> | <input type="text"/> | 4.5 | 5 | <input type="text"/> | 6 | 6.5 | | |
| 15 | <input type="text"/> | 182 | <input type="text"/> | 380 | <input type="text"/> | 578 | 677 | | |
| 16 | 10 | 6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | -10 | -14 | | |

C

Copy these sequences and write the next three numbers. What is the rule for each sequence? Can you write the rule for the n th term?

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|---|-----|----------------|----------------|----------------|----|------|------|------|------|----|------|----------------|----------------|----------------|
| 1 | 84 | 72 | 60 | 48 | 7 | 75 | 67 | 59 | 51 | 13 | 135 | 156 | 177 | 198 |
| 2 | 64 | 71 | 78 | 85 | 8 | 0.02 | 0.04 | 0.06 | 0.08 | 14 | 36 | 28 | 20 | 12 |
| 3 | 1.1 | 1.07 | 1.04 | 1.01 | 9 | 15 | 11 | 7 | 3 | 15 | 50 | 175 | 300 | 425 |
| 4 | 4 | $3\frac{5}{8}$ | $3\frac{2}{8}$ | $2\frac{7}{8}$ | 10 | 43 | 55 | 67 | 79 | 16 | 1.25 | 1.5 | 1.75 | 2 |
| 5 | 165 | 146 | 127 | 108 | 11 | -20 | -14 | -8 | -2 | 17 | 10 | $8\frac{3}{4}$ | $7\frac{1}{2}$ | $6\frac{1}{4}$ |
| 6 | -9 | -7 | -5 | -3 | 12 | 5 | 4.5 | 4 | 3.5 | 18 | -11 | -8 | -5 | -2 |