

Generating Sequences

For each of the sequences given, decide whether it is special, arithmetic, quadratic or geometric, then write down the next two terms.

- (a) 1, 1, 2, 3, 5, 8, ...
 (b) 4, 7, 10, 13, ...
 (c) 2, 4, 8, 16, ...
 (d) 10, 8, 6, 4, 2, ...
 (e) 1, 3, 6, 10, 15, ...
 (f) 160, 80, 40, 20, ...
 (g) 2, 5, 10, 17, ...
 (h) 1, 3, 5, 7, 9, ...

- (a) Special (Fibonacci)
13, 21
 (b) Arithmetic 16, 19
 (c) Geometric 32, 64
 (d) Arithmetic 0, -2
 (e) Special (Triangular) or Quadratic 21, 28
 (f) Geometric 10, 5
 (g) Quadratic 26, 37
 (h) Arithmetic or Special (odd)
11, 13

Generate the first four terms of the sequences with n th terms:

- (a) $2n$ (b) $3n - 1$
 (c) n^2 (d) $20 - n$
 (e) $7 - 3n$ (f) $n^2 + 5n$
 (g) $2n^2 - 1$ (h) $\frac{n(n+1)}{2}$

- (a) 2, 4, 6, 8 (b) 2, 5, 8, 11
 (c) 1, 4, 9, 16 (d) 19, 18, 17, 16
 (e) 4, 1, -2, -5 (f) 6, 14, 24, 36
 (g) 1, 7, 17, 31 (h) 1, 3, 6, 10

Generate the 6th and 20th terms of the sequences with n th terms:

- (a) $4n - 1$ (b) $n + 10$
 (c) $1 + n^2$ (d) $50 - 5n$
 (e) $-1 - n$ (f) $n^2 - 2n$
 (g) $3n^2 + n + 1$ (h) $\frac{n+1}{n+2}$

- (a) 23, 79 (b) 16, 30
 (c) 37, 401 (d) 20, -50
 (e) -7, -21 (f) 24, 360
 (g) 115, 1221 (h) $\frac{7}{8}, \frac{21}{22}$

- (a) Find the first term in the sequence with n th term $5n + 7$ that is greater than 250.
 (b) Find the first term in the sequence with n th term $150 - 8n$ that is a negative number.
 (c) Find the only number that is in both the sequences with n th term rules $2n - 9$ and $17 - 7n$.

- (a) 252, the 49th term
 (b) -2, the 19th term
 (c) 3