

## 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 nth 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 6<sup>th</sup> and 20<sup>th</sup> terms of the sequences with nth 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, 320
- (g) 115, 1221 (h)  $\frac{7}{8}, \frac{21}{22}$

(a) Find the first term in the sequence with nth term  $5n + 7$  that is greater than 250.

(b) Find the first term in the sequence with nth term  $150 - 8n$  that is a negative number.

(c) Find the only number that is in both the sequences with nth term rules  $2n - 9$  and  $17 - 7n$ .

- (a) 252, the 49<sup>th</sup> term
- (b) -2, the 19<sup>th</sup> term
- (c) 3