the nth term answers

1. Find the **nth and 10th term** of the following linear sequences:

a) 6, 10, 14, 18, 22...   **4n+2**

b) 1, 6, 11, 16, 21...   **5n-4**

c) 4, 6, 8, 10, 12...   **2n+2**

d) 13, 16, 19, 22, 25...   **3n+10**

e) 7, 8, 9, 10, 11...   **4n+2**

f) 1, 9, 17, 25, 33...   **8n-7**

g) 2, 11, 20, 29, 38...   **9n-7**

h) 5, 15, 25, 35, 45...   **5n+10**

i) 0, 3, 6, 9, 12...   **3n-3**

j) -1, 5, 11, 17, 23...   **6n-7**

k) -3, 7, 17, 27, 37...   **10n-13**

l) -10, -8, -6, -4, -2   **2n-12**

2. Find the **nth term** of the following linear sequences, these either increase by fractional amount or a negative amount:

a) 12, 10, 8, 6, 4...   **-2n+14**

b) 3.5, 4, 4.5, 5, 5.5...   **0.5n+3**

c) 0.2, 0.4, 0.6, 0.8, 1.0...   **0.2n**

d) 15, 12, 9, 6, 3...   **-3n+18**

e) 0, -4, -8, -12, -16...   **-4n+4**

f) 99, 98, 97, 96, 95...   **-n+100**

3. Find the **first 4 terms** of each linear sequence whose nth term is:

a) $6n+2$ **8, 14, 20, 26**

b) $3n+9$ **12, 15, 18, 21**

c) $5n-1$ **4, 9, 14, 19**

d) $n+5$ **6, 7, 8, 9**

e) $4n-3$ **1, 5, 9, 13**

f) $8n+11$ **19, 27, 35, 43**

g) $9n-6$ **3, 12, 21, 30**

h) $5n$ **5,10,15,20**

i) $-3n+24$ **21,18,15,12**

j) $-6n+66$ **60,54,48,42**

k) $2.5n+1$ **3.5,6,8.5,11**

l) $-7n+50$ **43, 36, 29, 22**

4. Identify which of the terms does **not** belong to the sequence with nth term:

a) $5n+1$	**54**	61	86	b) $10n-4$	16	56	**74**
c) $2n+1$	35	**36**	37	d) $4n+3$	51	83	**105**
e) $11n+3$	**101**	124	146	f) $5n+6$	151	**199**	236
g) $2n-4$	888	**925**	1000	h) $4n+5$	**156**	201	705

5. Find the first 5 terms of the following quadratic sequences

a) n^2 **1,4,9,16,25**

b) n^2+1 **2,5,10,17,26**

c) n^2-4 **-3,0,5,13,21**

d) $2n^2$ **2,8,18,32,50**

e) $2n^2+1$ **3,9,19,33,51**

f) n^2+n **2,6,12,20,30**

g) Look at the difference between successive terms in your quadratic sequences. What do you notice? **differences increase constant amount each time**

How is this different to what you saw before with the linear sequences? **linear sequences increase by same amount each time**

6. Find the first 5 terms of the following power sequence:

a) 2^n **2,4, 8, 16, 32**   to do this work out the following $2^1, 2^2, 2^3, 2^4, 2^5$

b) Use your answer to part a) to help you match the following sequences to their nth terms.

i) $3, 5, 9, 17, 33...$ 2^n+1

ii) $0, 3, 7, 15, 31...$ 2^n-1

iii) $1, 2, 4, 8, 16...$ $\dfrac{2^n}{2}$

iv) $6, 12, 24, 48, 96...$ $3(2^n)$

v) $3, 6, 11, 20, 37...$ 2^n+n