

# SHARP

## Werkkaart 5 Memorandum – Getalpatrone

### Graad 10 – Wiskunde

1. a) 3, 6, 9...  
i) tel 3 by die vorige term  
ii) 12, 15, 18  
iii)  $T_n = 3n$   
iv)  $T_{10} = 30$
- b) 6, 8, 10...  
i) tel 2 by die vorige term  
ii) 12, 14, 16  
iii)  $T_n = 2n + 4$   
iv)  $T_{10} = 24$
- c) 15, 17, 19...  
i) tel 2 by die vorige term  
ii) 21, 23, 25  
iii)  $T_n = 2n + 13$   
iv)  $T_{10} = 33$
- d) 11, 14, 17...  
i) tel 3 by die vorige term  
ii) 20, 23, 26  
iii)  $T_n = 3n + 8$   
iv)  $T_{10} = 38$
- e) 3, 1, -1...  
i) trek 2 af van die vorige term  
ii) -3, -5, -7  
iii)  $T_n = -2n + 5$   
iv)  $T_{10} = -15$
- f) 1, 4, 9...  
i) elke term is die kwadraat van sy posisie  
ii) 16, 25, 36  
iii)  $T_n = n^2$   
iv)  $T_{10} = 100$
- g) 2, 5, 10, 17...  
i) kwadreer elke term en tel 1 by  
ii) 26, 37, 50  
iii)  $T_n = n^2 + 1$   
iv)  $T_{10} = 101$
- h) 2, 8, 18, 32...  
i) kwadreer elke term en maal met 2.  
ii) 50, 72, 98  
iii)  $T_n = 2n^2$   
iv)  $T_{10} = 200$
- i)  $2\frac{1}{2}, 3, 3\frac{1}{2}, 4, \dots$   
i) tel  $\frac{1}{2}$  by die vorige term  
ii)  $4\frac{1}{2}, 5, 5\frac{1}{2}$   
iii)  $T_n = \frac{1}{2}n + 2$   
iv)  $T_{10} = 7$
- j)  $-2\frac{3}{4}, -2\frac{1}{2}, -2\frac{1}{4}, -2, \dots$   
i) tel  $\frac{1}{4}$  by die vorige term  
ii)  $-1\frac{3}{4}, -1\frac{1}{2}, -1\frac{1}{4}$   
iii)  $T_n = \frac{1}{4}n - 3$   
iv)  $T_{10} = -\frac{1}{2}$

2. a)

Segment	1	2	3	4	5	6	7
Borde	6	5	5	5	5	5	5
Totaal Borde	6	11	16	21	26	31	36

b) As die heining met 1 segment vermeerder word, dan vermeerder die totaal borde met 5.

$$T_n = 5n + 1$$

c)  $T_{20} = 5(20) + 1$

$$T_{20} = 101$$

d)  $136 = 5n + 1$

$$135 = 5n$$

$$\therefore n = 27$$

e) i) 6 (eerste segment); 10 (tweede segment); 14 (derde segment); 18 (vierde segment)

ii)  $T_n = 4n + 2$

iii)  $T_{20} = 4(20) + 2$

$$T_{20} = 82$$

$$\therefore \text{Hy sal spaar: } 101 - 82$$

$$= 19 \text{ boards.}$$

3. a) Tel  $1\frac{1}{4}$  by die vorige term.

b)  $T_n = 1\frac{1}{4}n - 3$

c)  $T_5 = 1\frac{1}{4}(5) - 3$

$$T_5 = 3\frac{1}{4}$$

$$T_9 = 1\frac{1}{4}(9) - 3$$

$$T_9 = 8\frac{1}{4}$$

$$T_{13} = 1\frac{1}{4}(13) - 3$$

$$T_{13} = 13\frac{1}{4}$$

d)  $14\frac{1}{2} = 1\frac{1}{4}n - 3$

$$17\frac{1}{2} = 1\frac{1}{4}n$$

$$\therefore n = 14$$

e) Laat die posisie =  $x - 1$  en term =  $x$

$$\therefore x = 1\frac{1}{4}(x - 1) - 3$$

$$\therefore x = 1\frac{1}{4}x - 1\frac{1}{4} - 3$$

$$\therefore x - 1\frac{1}{4}x = -4\frac{1}{4}$$

$$\therefore -\frac{1}{4}x = -4\frac{1}{4}$$

$$\therefore x = 17$$

$\therefore$  Term = 17 en die posisie is 16.

4. a)  $T_n = 2^n + 1$

i) 3, 5, 9

b)  $T_{n+1} = 2T_n - n; \quad T_1 = 9$

i) 9, 16, 29

- ii)  $T_{11} = 2\ 049$
- iii) nie rekenkundig
- iv) NVT

- ii) Nie nodig, maar as probeer:  $T_{11} = 349$
- iii) nie rekenkundig
- iv) NVT

c)  $T_n = 3n + 4$

d)  $T_n = n^2 - 2n + 3$

e)  $T_n = \frac{1}{2}n - 4$

i) 7, 10, 13

i) 2, 3, 6

i)  $-3\frac{1}{2}, -3, -2\frac{1}{2}$

ii)  $T_{11} = 37$

ii)  $T_{11} = 102$

ii)  $T_{11} = 1\frac{1}{2}$

iii) Rekenkundig

iii) Rekenkundig

iii) Rekenkundig

iv) 3

iv) N/A

iv)  $\frac{1}{2}$

f)  $T_{n+1} = T_n + 3; \quad T_1 = 5$

g)  $T_n = 3^n - 1$

h)  $T_n = n(n + 1)$

i) 5, 8, 11

i) 2, 8, 26

i) 2, 6, 12

ii)  $T_{11} = 35$

ii)  $T_{11} = 177\ 146$

ii)  $T_{11} = 132$

iii) Rekenkundig

iii) Nie rekenkundig

iii) Nie rekenkundig

iv) 3

iv) NVT

iv) NVT

i)  $T_{n+1} = T_n - T_{n-1}$  waar  $T_1 = 3$  en  $T_2 = 8$

i) 3, 8, 5

ii) nie nodig maar as probeer:  $T_{11} = -307$

iii) Nie rekenkundig

iv) NVT

j)  $T_n = 4n - 3$

i) 1, 5, 9

ii)  $T_{11} = 41$

iii) Rekenkundig

iv) 4

5. Die onewe term is baie maklik aangesien die onewe tempatroon 'n herhalende 6 is: 6, ewe, 6, ewe, 6...

$$\therefore T_{31} = 6$$

Vir die ewe term is die patroon onewe: -4, onewe, 1, onewe, 6...

Dus, die formule vir die patroon is  $T_n = 5n - 9$

$$\text{En } \therefore T_{30} = 5(30) - 9$$

$$T_{30} = 141.$$