



CAMI Mathematics: Grade 11

GRADE 11 CAPS Curriculum

11.4 Number patterns

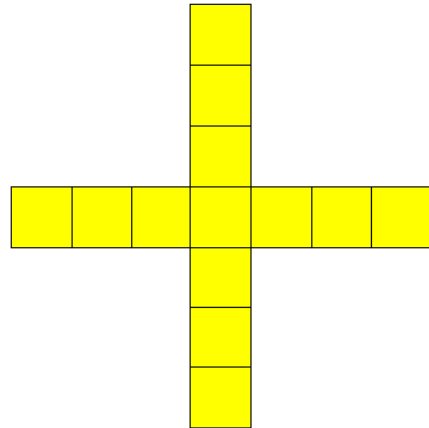
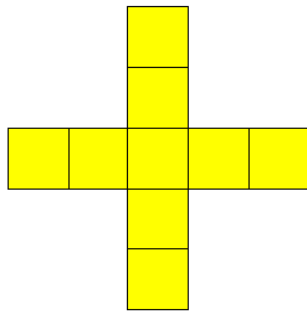
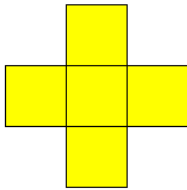
1. Complete the following number sequence.

(a) 49 ; 64 ; 81 ; 100 ; ;

(b) 36 ; 25 ; 16 ; ;

2. Write down the relationship between the number of squares in the form

$$T_n = an + b$$



2.1 Complete the table:

Figure	1	2	3	4	5
Number of squares					

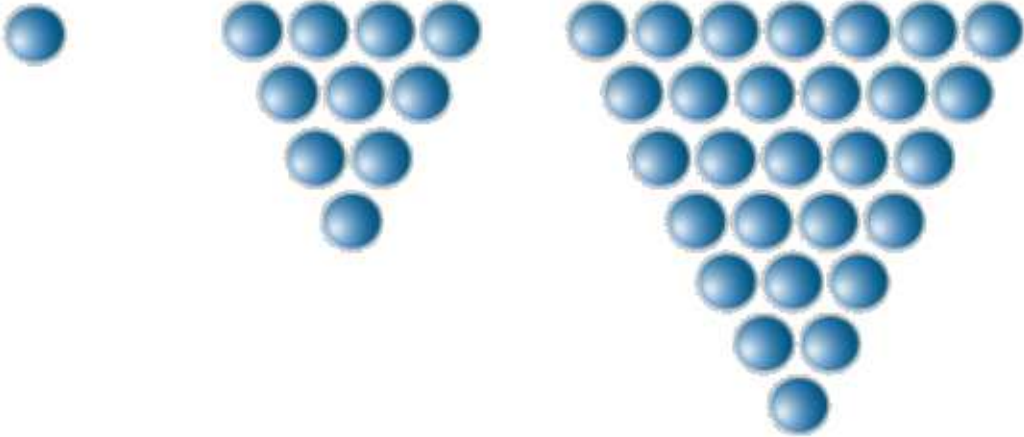
2.2 Complete the calculations for T_n .

3. Write down the relationship between the number of squares in the form

$$T_n = an^2 + bn + c$$



CAMI Mathematics: Grade 11



3.1 Complete the table.

Figure	1	2	3	4	5
Number of circles					

3.2 Complete the calculations for T_n .

4. Linear and quadratic patterns.

4.1 Determine T_n and T_{99} for the following sequence:

18 ; 23 ; 28 ; ...

4.2 Determine T_n and T_{31} for the following sequence:

-6 ; 2 ; 12 ; 24 ;



CAMI Mathematics: Grade 11

Memo

1. Complete the sequence. [4.1.4.3]

(a) 49 ; 64 ; 81 ; 100 ; 121 ; 144

(b) 36 ; 25 ; 16 ; 9 ; 4

2 Linear picture pattern. [4.1.5.2]

2.1

Figure	1	2	3	4	5
Number of squares	5	9	13	17	21

2.2 $a = 4$

$$T_n = 4n + b$$

$$5 = 4(1) + b$$

$$b = 1$$

$$T_n = 4n + 1$$

3. Quadratic picture pattern. [4.1.5.3]

3.1

Figure	1	2	3	4	5
Number of circles	1	10	28	55	91

3.2 $2a = 9$

$$a = \frac{9}{2}$$

$$3a + b = 9$$

$$3\left(\frac{9}{2}\right) + b = 9$$

$$b = -\frac{9}{2}$$

$$a + b + c = 1$$

$$\frac{9}{2} - \frac{9}{2} + c = 1$$

$$c = 1$$

$$T_n = \frac{9}{2}n^2 - \frac{9}{2}n + 1$$

4. Linear and quadratic patterns. [4.1.5.5]

4.1 $d = 23 - 18 = 5$

$$a = 18$$

$$T_n = 5n + c$$

$$18 = 5(1) + c$$

$$c = 13$$

$$T_n = 5n + 13$$

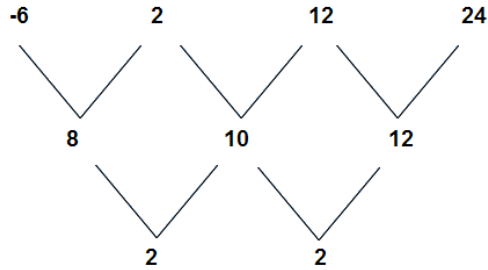
$$T_{99} = 5(99) + 13$$

$$T_{99} = 508$$



CAMI Mathematics: Grade 11

4.2



$$2a = 2$$

$$a = 1$$

$$3a + b = 8$$

$$3(1) + b = 8$$

$$b = 5$$

$$T_n = n^2 + 5n + c$$

$$-6 = (1)^2 + 5(1) + c$$

$$c = -12$$

$$T_n = n^2 + 5n - 12$$