

LINEAR SEQUENCESEXERCISE

For questions 1 to 5 find:

- The rule
- The next two terms
- A formula for the n^{th} term
- The 10th term
- The 25th term

1. 6, 8, 10, 12, 14, ..., ...

2. 1, 5, 9, 13, 17, ..., ...

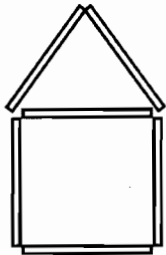
3. 5, 10, 15, 20, 25, ..., ...

4. 21, 31, 41, 51, 61, ..., ...

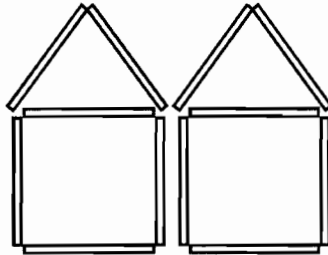
5. 3, 10, 17, 24, 31, ..., ...

6.

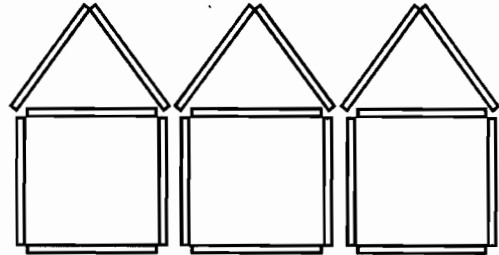
Here are some patterns made from matchsticks.



Pattern number 1



Pattern number 2

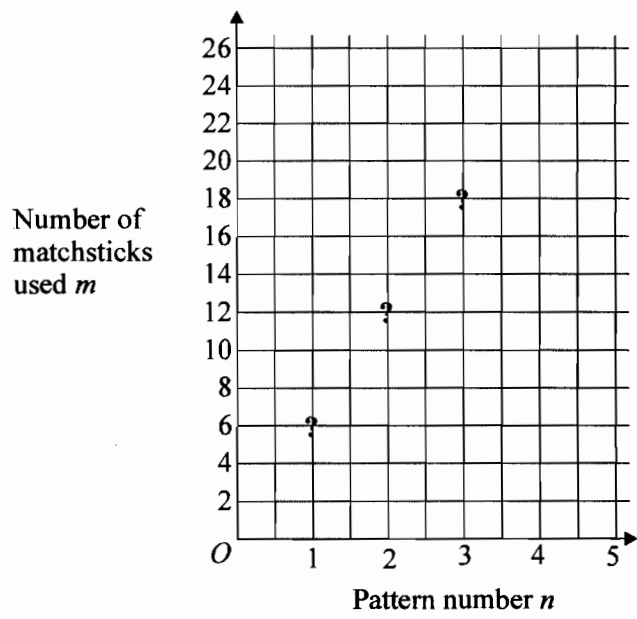


Pattern number 3

(a) Draw Pattern number 4, in the space below.

The graph shows the number of matchsticks m in pattern number n .

(b) Mark the point which shows the number of matchsticks used in Pattern number 4.



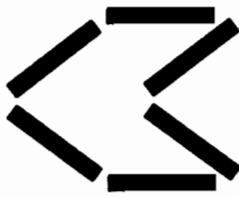
(c) How many matchsticks are used in Pattern number 10?

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EXERCISE

7.

Here are some patterns made from sticks.



Pattern number 1



Pattern number 2



Pattern number 3

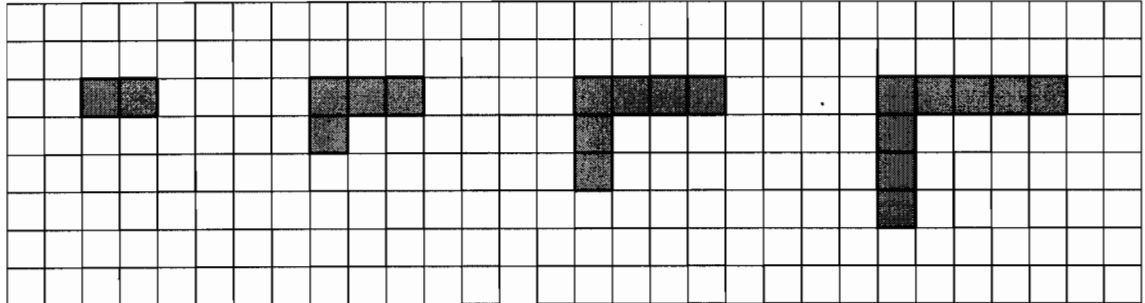
(a) Complete Pattern number 4.

(b) Complete the table.

Pattern number	Number of sticks
1	6
2	10
3	14
4	
5	

(c) How many sticks in Pattern number 25 ?

Here are some patterns made out of squares.



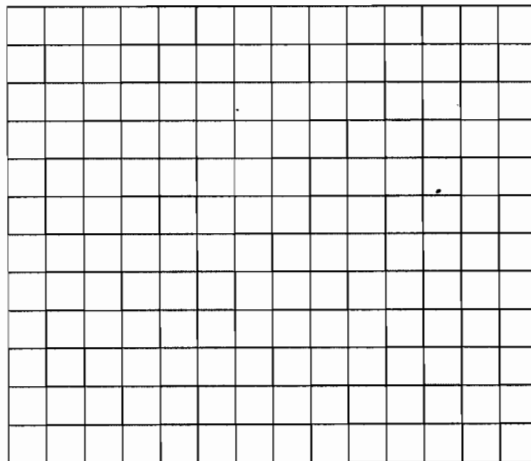
Pattern number 1

Pattern number 2

Pattern number 3

Pattern number 4

(a) On the grid draw Pattern number 5.



(b) Complete the table for Pattern number 5 and Pattern number 6.

Pattern number	1	2	3	4	5	6
Number of squares	2	4	6	8		

(c) How many squares in Pattern number 20 ?

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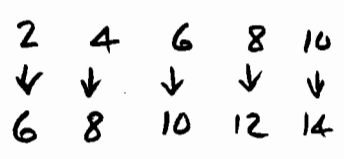
EXERCISE

1. 6, 8, 10, 12, 14, ...

Rule: Add 2

Next two terms: 16, 18

$n^{th} \text{ term} = 2n + 4$



$10^{th} \text{ term} = 2 \times 10 + 4 = 24$

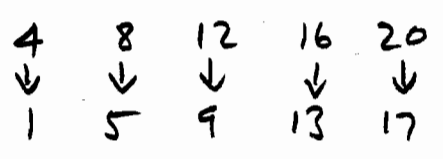
$25^{th} \text{ term} = 2 \times 25 + 4 = 54$

2. 1, 5, 9, 13, 17, ...

Rule: Add 4

Next two terms: 21, 25

$n^{th} \text{ term} = 4n - 3$



$10^{th} \text{ term} = 4 \times 10 - 3 = 37$

$25^{th} \text{ term} = 4 \times 25 - 3 = 97$

3. 5, 10, 15, 20, 25, ...

Rule: Add 5

Next two terms: 30, 35

$n^{th} \text{ term} = 5n$

No adjustment required

$10^{th} \text{ term} = 5 \times 10 = 50$

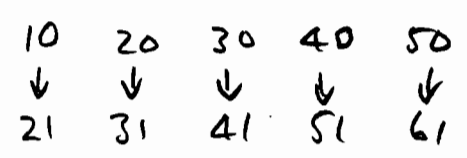
$25^{th} \text{ term} = 5 \times 25 = 125$

4. 21, 31, 41, 51, 61, ...

Rule: Add 10

Next two terms: 71, 81

$n^{th} \text{ term} = 10n + 11$



$10^{th} \text{ term} = 10 \times 10 + 11 = 111$

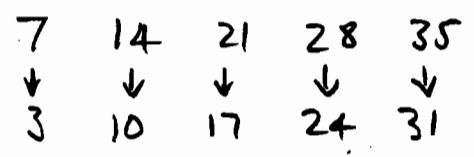
$25^{th} \text{ term} = 10 \times 25 + 11 = 261$

5. 3, 10, 17, 24, 31, ...

Rule: Add 7

Next two terms: 38, 45

$n^{th} \text{ term} = 7n - 4$

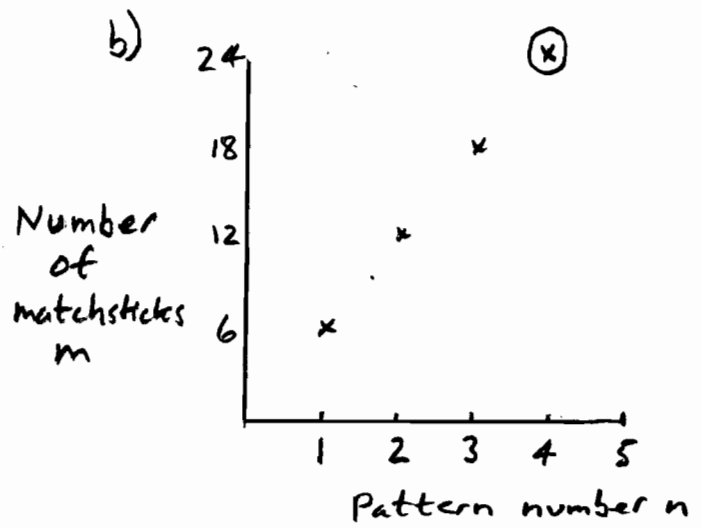


$10^{th} \text{ term} = 7 \times 10 - 4 = 66$

$25^{th} \text{ term} = 7 \times 25 - 4 = 171$

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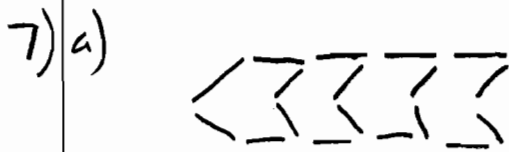
EXERCISE



c) $n^{\text{th}} \text{ term} = 6n$

so $m = 6n$

In pattern 10 $m = 6 \times 10 = 60$ matchsticks



b)

Pattern	Sticks
1	6
2	10
3	14
4	18
5	22

$n^{\text{th}} \text{ term} = 4n + 2$

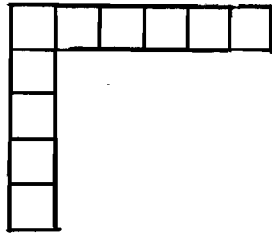
$25^{\text{th}} \text{ term} = 4 \times 25 + 2 = 102$

so 102 sticks in Pattern number 25

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8) Pattern 5

a)



b)

Pattern	1	2	3	4	5	6
Squares	2	4	6	8	10	12

c)

$$n^{\text{th}} \text{ term} = 2n$$

$$20^{\text{th}} \text{ term} = 2 \times 20 = 40$$

So 40 squares in Pattern number 20

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