H.W
12/5/21

Exercise 5(F)

1. For each pattern, given below, write the next three steps:

(i)
$1 \times 9 + 1 = 10$
$12 \times 9 + 2 = 110$
$123 \times 9 + 3 = 1110$

Ans - $1234 \times 9 + 4 = 11,110$
$12345 \times 9 + 5 = 1,11,110$
$123456 \times 9 + 6 = 11,11,110$

(ii)
$9 \times 9 + 7 = 88$
$98 \times 9 + 6 = 888$
$987 \times 9 + 5 = 8888$

Ans - $9876 \times 9 + 4 = 88,888$
$98765 \times 9 + 3 = 8,88,888$
$987654 \times 9 + 2 = 88,88,888$

(iii)
$1 \times 8 + 1 = 9$
$12 \times 8 + 2 = 98$
$123 \times 8 + 3 = 987$

Ans - $1234 \times 8 + 4 = 9876$
$12345 \times 8 + 5 = 98765$
$123456 \times 8 + 6 = 9,87,654$

(iv)
$111 \div 3 = 37$
$222 \div 6 = 37$
$333 \div 9 = 37$

Ans - $444 \div 12 = 37$
$555 \div 15 = 37$
$666 \div 18 = 37$

2. Complete each of the following magic squares:

(i)

6	7	2
1	5	9
8	3	4

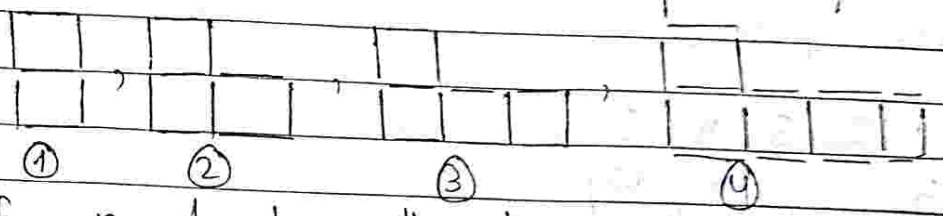
(ii)

4	9	8
11	7	3
6	5	10

(iii)

6	2	12
6	10	14
8	18	4

3. See the following pattern carefully.



(i) If n denotes the ~~term~~ number of figures and S denotes the number of matchsticks, find S in terms of N.

n	1	2	3	4	5
S	7	10	13	16	19

$S = 3n + 4$

(ii) Find how many matchsticks are required to make the:

① 15th figure:

$15 \times 3 + 4 =$
$= 45 + 4$
$= 49$

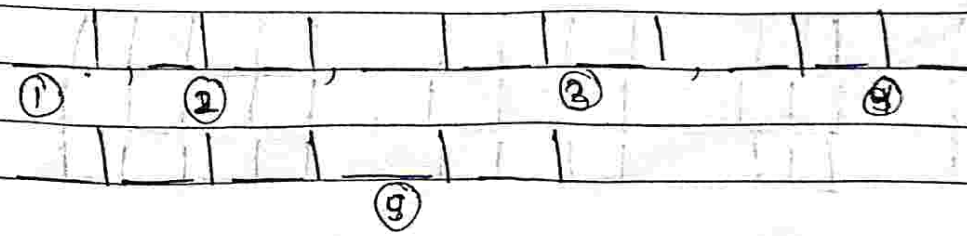
② 40 th figure

$= 40 \times 3 + 4$
$= 120 + 4$
$= 124$

(iii) Write a discription of the pattern in words:

Ans - Number of matchsticks (S) is equal to four more than three times the number of the figure.

4. In the following pattern, draw next two figures.



(ii) Construct a table to describe the figures in the above pattern.

Ans -

n	1	2	3	4	5
S	2	4	6	8	10

(iii) If n denotes the number of figures and L denotes the number of matchsticks, find L in terms of n.

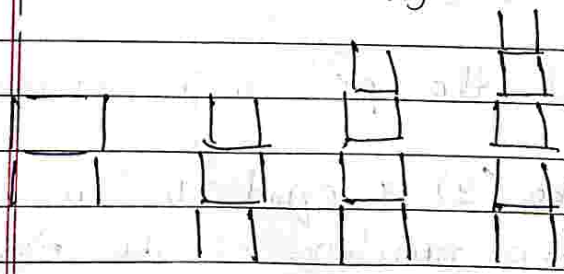
Ans - $L = 2n$

(iv) Find how many matchsticks are required to make the:

(i) 12th figure = $12 \times 2 = 24$
(ii) 20th figure = $20 \times 2 = 40$

5. In each of the following patterns, construct the next figure.

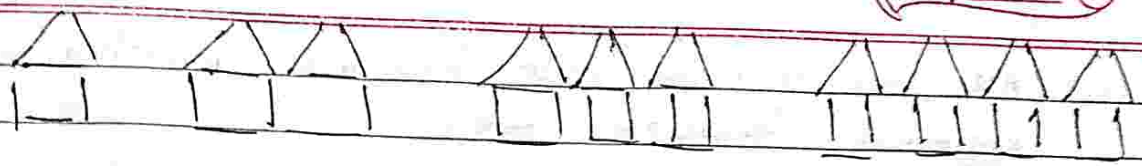
(a)

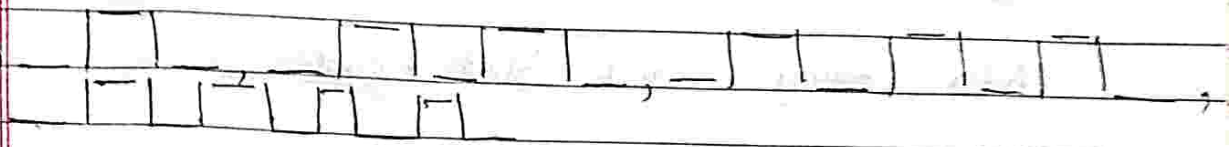


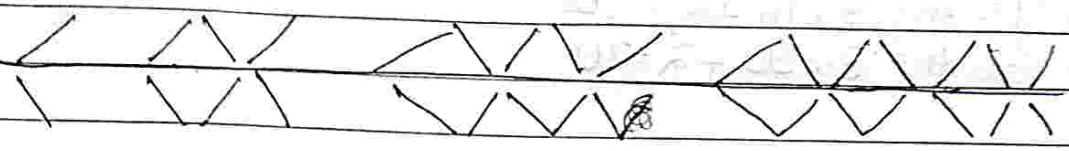
(b)

(c)

the

(d) 

(e) 

(f) 

(i) in each case, if n denotes the number of figures and f denotes the number of matchsticks used, find F in terms of n.

(a)

n	1	2	3	4
f	5	8	11	14

$F = 3n + 2$

(b)

n	1	2	3	4
f	5	9	13	17

$F = 4n + 3$

(c)

n	1	2	3	4
f	8	13	18	23

$F = 5n + 3$

(d)

n	1	2	3	4
f	6	11	16	21

$F = 5n + 1$

(e)

n	1	2	3	4
F	5	9	13	17

$F = 4n + 1$

(f)

n	1	2	3	4
f	2	6	10	14

$F = 4n - 2$

(ii) Also find, in each case, how many matchsticks are required to make the:

16 the figure and 30th figure

(a) 16 th = $3 \times 16 + 2 = 50$
30 th = $3 \times 30 + 2 = 90$

(b) 16 th = $4 \times 16 + 1 = 65$
30 th = $4 \times 30 + 1 = 121$

(c) 16 th = $5 \times 16 + 3 = 83$
30 th = $5 \times 30 + 3 = 153$

(d) 16 th = $5 \times 16 + 1 = 81$
30 th = $5 \times 30 + 1 = 151$

(e) 16 th = $4 \times 16 + 1 = 65$
30 th = $4 \times 30 + 1 = 121$

(f) 16 th = $4 \times 16 - 2 = 62$
30 th = $4 \times 30 - 2 = 118$