Exercise 5(F)

1. (i) $1234 \times 9 + 4 = 11110$

(ii) $12345 \times 9 + 5 = 111110$

(iii) $123456 \times 9 + 6 = 1111110$

(iv)

(i) $9 \times 9 + 7 = 88$

(ii) $98 \times 9 + 6 = 888$

(iii) $987 \times 9 + 5 = 8888$

$9876 \times 9 + 4 = 88888$

$98765 \times 9 + 3 = 888888$

$987654 \times 9 + 2 = 8888888$

iii) $1 \times 8 + 1 = 9$

$12 \times 8 + 2 = 98$

$123 \times 8 + 3 = 987$

$1234 \times 8 + 4 = 9876$

$12345 \times 8 + 5 = 98765$

$123456 \times 8 + 6 = 987654$

iv) $111 \div 3 = 37$

$222 \div 6 = 37$

$333 \div 9 = 37$

$444 \div 12 = 37$

$555 \div 15 = 37$

$666 \div 18 = 37$

2.

1)

6	7	2
1	5	9
8	3	4

(i)

4	9	8
11	7	3
6	5	10

(ii)

16	2	12
6	10	14
8	18	4

Figure number (n)	1	2	3	4
Number of matchsticks (S)	7	10	13	16

+3 +3 +3

Pattern = 7 + (n-1) = 7 + (5-1) = 7 + 4 + (n-1)3 = 7 + 4 + (14)

iii) Solution

= ~~6+3(n3)~~

= ~~6+~~(15×3)+4 = 15×3+4 = 49

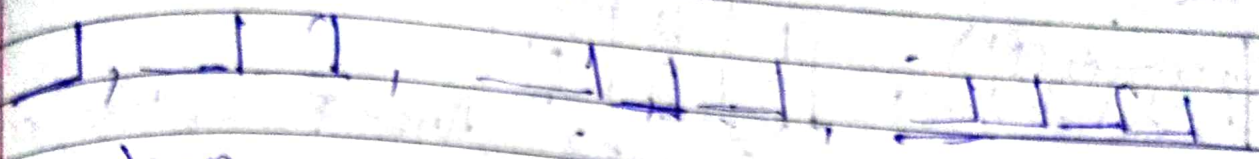
2) Solution:

~~= S+(n3)~~

= [illegible] 3×40+4 = 124 matches

iii) It is clear that each time the figure (n) is increased by 4, the number of matches (S) are increased by 3.

4. Figure = 1, 2, 3, 4
Matchsticks = 2, 4, 6, 8
+2 +2 +2

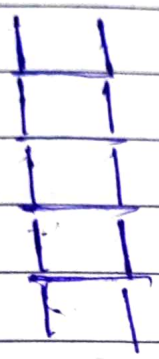
i) 

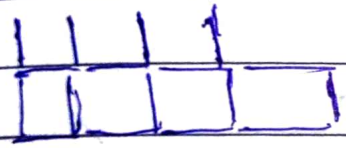
ii) Solution:

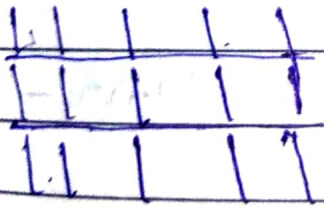
1 = 2n

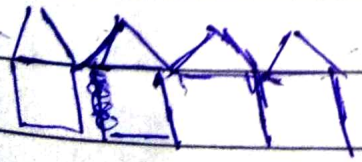
iii) 12th figure = 2×12 = 24.

2) 20th figure = 2×20 = 40 Ans

5. a) 

b) 

c) 

d) 

e) 

f) 

i) a)

Figures (N)	1	2	3
Matchsticks (F)	5	8	11

+3 +3

Ans- $F = 3n + 2$

ii) $16 \times 3 + 2 = 50$

$30 \times 3 + 2 = 92$

b)

Figures (N)	1	2	3
Matchsticks (F)	5	9	13

+4 +4

Ans- $F = 4n + 1$.

Ans- ii) $16 = 16 \times 4 + 1 = 65$, $30 = 30 \times 4 + 1 = 121$

c)

Figures (N)	1	2	3
Matchsticks (F)	8	13	18

+5 +5

Ans- $F = 5n + 3$

ii) $16 = 16 \times 5 + 3 = 83$, $30 = 30 \times 5 + 3 = 153$

d)

Figures (N)	1	2	3
Matchsticks (F)	6	11	16

+5 +5

Ans- $F = 5n + 1$

ii) $16 = 16 \times 5 + 1 = 81$, $30 = 30 \times 5 + 1 = 151$

e)

Figures (N)	1	2	3
Matchsticks	5	9	13

+4 +4

Ans- $F = F = 4n + 1$

ii) $16 = 16 \times 4 + 1 = 65$, $30 = 30 \times 4 + 1 = 121$

f)

Figures (N)	1	2	3	4
Matchsticks (F	2	6	10	14

+4 +4 +4

Ans- $F = 4n - 2$

ii) $16 = 16 \times 4 - 2 = 62$, $30 = 30 \times 4 - 2 = 118$