

Homework

Subj: Math

Chap: 5

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Exercise: 57

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

i) $1 \times 9 + 1 = 10$
 $12 \times 9 + 2 = 110$
 $123 \times 9 + 3 = 1110$
 $1234 \times 9 + 4 = 11110$
 $12345 \times 9 + 5 = 111110$
 $123456 \times 9 + 6 = 1111110$

iv) $111 \div 3 = 37$
 $222 \div 6 = 37$
 $333 \div 9 = 37$
 $444 \div 12 = 37$
 $555 \div 15 = 37$
 $666 \div 18 = 37$

ii) $9 \times 9 + 7 = 88$
 $98 \times 9 + 6 = 888$
 $987 \times 9 + 5 = 8888$
 $9876 \times 9 + 4 = 88888$
 $98765 \times 9 + 3 = 888888$
 $987654 \times 9 + 2 = 8888888$

iii) $1 \times 8 + 1 = 9$
 $12 \times 8 + 2 = 98$
 $123 \times 8 + 3 = 987$
 $1234 \times 8 + 4 = 9876$
 $12345 \times 8 + 5 = 98765$
 $123456 \times 8 + 6 = 987654$

2. Complete each of the following magic ^{squares}, carefully.

i)

		15	
6	7	<u>2</u>	
<u>1</u>	5	9	
8	<u>3</u>	4	

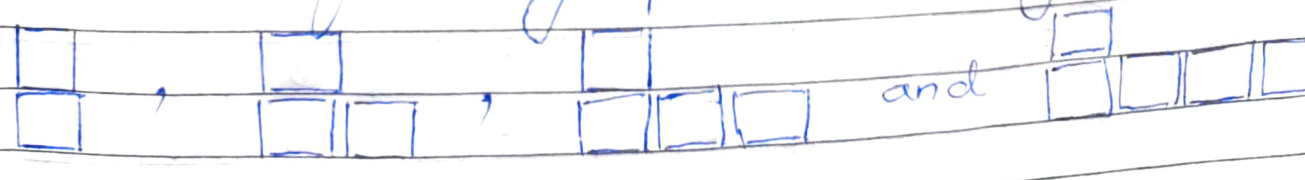
ii)

4	<u>9</u>	8	17
<u>11</u>	7	<u>3</u>	
<u>6</u>	<u>5</u>	10	

iii)

16	2	<u>12</u>	30
<u>6</u>	10	<u>14</u>	
<u>8</u>	<u>18</u>	9	1

3. See the following pattern carefully:



i) If n donets the number of figure

Figure number (n)	2	3	4	5
Number of matchsticks (S)	7	10	13	16

$\underbrace{\hspace{1.5cm}}_{+3}$ $\underbrace{\hspace{1.5cm}}_{+3}$ $\underbrace{\hspace{1.5cm}}_{+3}$

ii) For each increase of n by 1, S increases by 3, we compare $3n$ with S

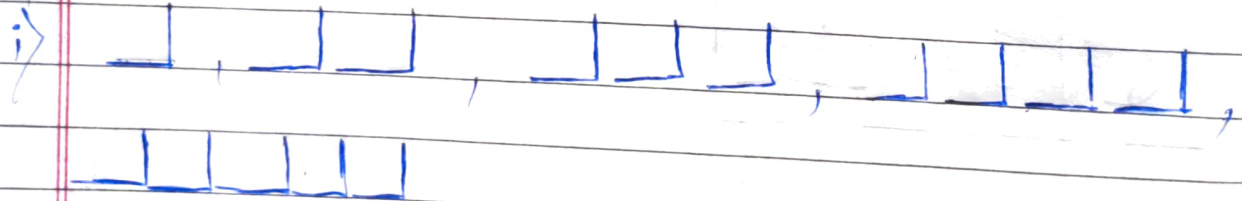
iii) $S = 3n + 1$

$3n$	6	9	12	15
S	7	10	13	16

ii) 15th figure = $3n + 1 = 3 \times 15 + 1 = 45 + 1 = 46$

2) 40th figure = $3n + 1 = 3 \times 40 + 1 = 120 + 1 = 121$

4.



ii)

1	2	3		
2	4	6		

iii)

Figure number (n)	1	2	3	
Matchstick S (L)	2	4	6	

$\underbrace{\hspace{1.5cm}}_{+2}$ $\underbrace{\hspace{1.5cm}}_{+2}$

For each increase of n by 1 and L increased by

2. In order to find L in terms of n

we compare $2n$ with L

$2n$	2	4	6
L	2	4	6

$$L = 2n$$

iv) 1) 12^{th} figure = $2 \times 12 = 24$

2) 20^{th} figure = $2 \times 20 = 40$

5.) In each case, if n denotes the number of figures and F denotes the number of matchsticks used, find F in terms of n .

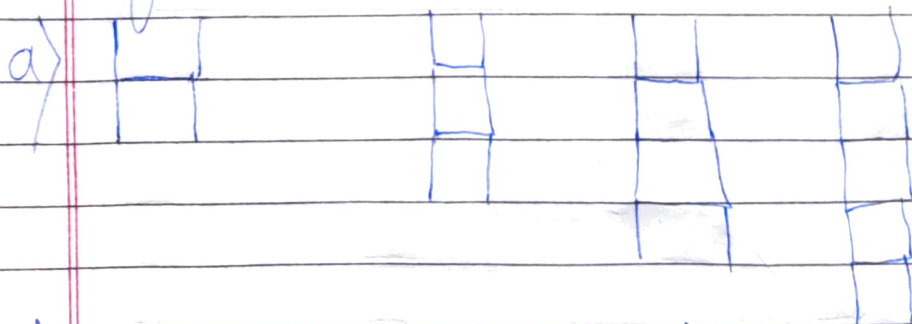
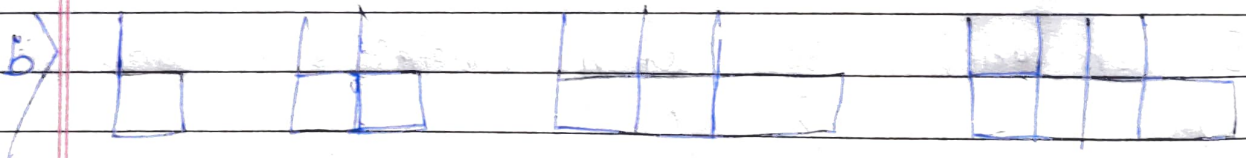


Figure ⁽ⁿ⁾ num	2	3	4	5
No of Matchsticks (F)	5	8	11	14
		+3	+3	+3

i) For each increase of n by 1 and F increases by 3, we compare $3n$ with F

$3n$	3	6	9	12
F	5	8	11	14

$3n$	6	9	12	15
F	5	8	11	14



$5n$	5	10	15	20
F	6	11	16	21

$$F = 5n + 1$$

ii) 16^{th} figure = $5n + 1 = 5 \times 16 + 1 = 81$

30^{th} figure = $5n + 1 = 5 \times 30 + 1 = 150 + 1 = 151$

e)



f)

