EXERCISE 4.2 PAGE: 4.8

1. A magic square is an array of numbers having the same number of rows and columns and the sum of numbers in each row, column or diagonal being the same. Fill in the blank cells of the following magic squares:

(i)

	8	13
	12	
11		

(ii)

22		6	13	20
	10	12	19	
9	11	18	25	
15	17	24	26	
16			7	14

Solution:

(i) We know that
Considering diagonal values 13 + 12 + 11 = 36
So we get
No. in the first cell of the first row = 36 – (8 + 13) = 15
No. in the first cell of the second row = 36 – (15 + 11) = 10
No. in the third cell of the second row = 36 – (10 + 12) = 14
No. in the second cell of the third row = 36 – (8 + 12) = 16
No. in the third cell of the third row = 36 – (11 + 16) = 9

15	8	13
10	12	14
11	16	9

(ii) We know that
Considering diagonal values 20 + 19 + 18 + 17 + 16 = 90
So we get
No. in the second cell of the first row = 90 – (22 + 6 + 13 + 20) = 29
No. in the first cell of the second row = 90 – (22 + 9 + 15 + 16) = 28
No. in the fifth cell of the second row = 90 – (28 + 10 + 12 + 19) = 21
No. in the fifth cell of the third row = 90 – (9 + 11 + 18 + 25) = 27
No. in the fifth cell of the fourth row = 90 – (15 + 17 + 24 + 26) = 8
No. in the second cell of the fifth row = 90 – (29 + 10 + 11 + 17) = 23
No. in the third cell of the fifth row = 90 – (6 + 12 + 18 + 24) = 30

22	29	6	13	20
28	10	12	19	21
9	11	18	25	27
15	17	24	26	8
16	23	30	7	14

2. Perform the following subtractions and check your results by performing corresponding additions:
(i) 57839 – 2983
(ii) 92507 – 10879
(iii) 400000 – 98798
(iv) 5050501 – 969696
(v) 200000 – 97531
(vi) 3030301 – 868686
Solution:

(i) 57839 – 2983
We know that
57839 – 2983 = 54856
By addition
54856 + 2983 = 57839

(ii) 92507 – 10879
We know that
92507 – 10879 = 81628
By addition
81628 + 10879 = 92507

(iii) 400000 – 98798
We know that
400000 – 98798 = 301202
By addition
301202 + 98798 = 400000

(iv) 5050501 – 969696
We know that
5050501 – 969696 = 4080805
By addition
4080805 + 969696 = 5050501

(v) 200000 – 97531
We know that
200000 – 97531 = 102469
By addition
102469 + 97531 = 200000

(vi) 3030301 – 868686
We know that

3030301 – 868686 = 2161615
By addition
2161615 + 868686 = 3030301

3. Replace each * by the correct digit in each of the following:

(i)

	8	7	6
–	*	3	*
	6	*	7

(ii)

	8	9	8	9
–	*	*	3	4
	3	4	*	*

(iii)

	6	0	0	0	1	0	7
–		*	*	8	9	7	8
	5	0	6	*	*	*	*

(iv)

	1	0	0	0	0	0	0
–			*	*	*	*	1
		*	7	0	4	2	*

(v)

	5	0	0	1	0	0	3
–		*	*	6	9	8	7
	4	8	4	*	*	*	*

(vi)

	1	1	1	1	1	1
–		*	6	7	8	9
		5	4	3	2	*

Solution:

(i) We know that in the units digit
6 - * = 7 where the value of * is 9 as 1 gets carried from 7 at tens place to 6 at units place
6 at the units place becomes 16 so 16 – 9 = 7
When 7 is reduced by 1 it gives 6 so 6 – 3 = 3
We know that
8 - * = 6 so we get * value as 2

	8	7	6
–	2	3	9
	6	3	7

(ii) We know that in the units digit

9 – 4 = 5
Tens digit 8 – 3 = 5
So the missing blank can be found by subtracting 3455 from 8989
Difference between them = 3455
So the answer is

	8	9	8	9
−	5	5	3	4
	3	4	5	5

(iii) We know that in units digit
17 – 8 = 9
Tens digit = 9 – 7 = 2
So we get
Hundreds place 10 – 9 = 1
Thousands place 9 – 8 = 1
So the addend difference = 5061129
Subtract 5061129 from 6000107 to get addend

	6	0	0	0	1	0	7
−	5	0	6	1	1	2	9
	0	9	3	8	9	7	8

So the answer is

	6	0	0	0	1	0	7
−	0	9	3	8	9	7	8
	5	0	6	1	1	2	9

(iv) We know that in units digit
10 – 1 = 9
Lakhs place 9 – 0 = 9
So the addend difference = 970429
Subtract 970429 from 1000000 to get the addend

	1	0	0	0	0	0	0
−	0	9	7	0	4	2	9
	0	0	2	9	5	7	1

So the correct answer is

	1	0	0	0	0	0	0
−	0	0	2	9	5	7	1
	0	9	7	0	4	2	9

(v) We know that in units digit
13 – 7 = 6
Tens digit 9 – 8 = 1
Hundreds place 9 – 9 = 0
Thousands place 10 – 6 = 4
So the addend difference = 4844016

Subtract 4844016 from 5001003 to get the addend

$$\begin{array}{r} 5\ 0\ 0\ 1\ 0\ 0\ 3 \\ -\ 4\ 8\ 4\ 4\ 0\ 1\ 6 \\ \hline 0\ 1\ 5\ 6\ 9\ 8\ 7 \end{array}$$

So the answer is

$$\begin{array}{r} 5\ 0\ 0\ 1\ 0\ 0\ 3 \\ -\ 0\ 1\ 5\ 6\ 9\ 8\ 7 \\ \hline 4\ 8\ 4\ 4\ 0\ 1\ 6 \end{array}$$

(vi) We know that units digit
11 – 9 = 2
So the addend difference = 54322
Subtract 54322 from 111111 to get the addend

$$\begin{array}{r} 1\ 1\ 1\ 1\ 1\ 1 \\ -\ \ 5\ 4\ 3\ 2\ 2 \\ \hline \ \ 5\ 6\ 7\ 8\ 9 \end{array}$$

So the answer is

$$\begin{array}{r} 1\ 1\ 1\ 1\ 1\ 1 \\ -\ \ 5\ 6\ 7\ 8\ 9 \\ \hline \ \ 5\ 4\ 3\ 2\ 2 \end{array}$$

4. What is the difference between the largest number of five digits and the smallest number of six digits?
Solution:

99999 is the largest number of five digits
100000 is the largest number of six digits
Difference = 100000 – 99999 = 1

Therefore, 1 is the difference between the largest number of five digits and smallest number of six digits.

5. Find the difference between the largest number of 4 digits and the smallest number of 7 digits.
Solution:

9999 is the largest number of 4 digits
1000000 is the smallest number of 6 digits
Difference = 1000000 – 9999 = 990001

Therefore, 990001 is the difference between the largest number of 4 digits and the smallest number of 7 digits.

6. Rohit deposited Rs 125000 in his savings bank account. Later he withdrew Rs 35425 from it. How much money was left in his account?
Solution:

Money deposited in savings bank account = Rs 125000
Money withdrawn = Rs 35425

So the money which is left out in his account = 125000 – 35425 = Rs 89575

Hence, Rs 89575 is left in his account.

7. The population of a town is 96209. If the number of men is 29642 and that of women is 29167, determine the number of children.
Solution:

Population of a town = 96209
No. of men = 29642
No. of women = 29167
Total number of men and women = 29642 + 29167 = 58809
So the number of children = Population of a town – Total number of men and women
Number of children = 96209 – 58809 = 37400

Hence, there are 37400 children.

8. The digits of 6 and 9 of the number 36490 are interchanged. Find the difference between the original number and the new number.
Solution:

It is given that
Original Number = 39460
Number after interchanging 6 and 9 = 36490
Difference between them = 39460 – 36490 = 2790
Therefore, the difference between the original number and new number is 2970.

9. The population of a town was 59000. In one year it was increased by 4536 due to new births. However, 9218 persons died or left the town during the year. What was the population at the end of the year?
Solution:

Population of a town = 59000
Population increase = 4536
Population decrease = 9218
So the population at the end of year = 59000 + 4536 – 9218 = 54318

Therefore, the population at the end of the year is 54318.