

Exercise 4.2

Q.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 blanks cells of the following magic square.

(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) here we see that

$$\text{sum of diagonal numbers} = 11 + 12 + 13 = 36$$

$$\text{Now First cell in first row} = 36 - (8 + 13) = 15$$

$$\text{First cell in Second row} = 36 - (15 + 11) = 10$$

$$\text{Now second cell in Third row} = 36 - (8 + 12) = 16$$

$$\text{Third cell in Second row} = 36 - (12 + 10) = 36 - 22 = 14$$

$$\text{Now Third cell in the third row} = 36 - (11 + 16) = 9$$

here magic square is as follows.

15	8	13
10	12	14
11	16	9

(ii) here, Sum of the numbers on diagonal
 $= 16 + 17 + 18 + 19 + 20 = 90$

Now second cell in first row $= 90 - (22 + 6 + 13 + 20)$
 $= 90 - 61 = 29$

First cell in second row $= 90 - (22 + 9 + 15 + 16)$
 $= 90 - 62 = 28$

Fifth cell in second row $= 90 - (28 + 10 + 12 + 19)$
 $= 90 - 69 = 21$

Fifth cell in third row $= 90 - (9 + 11 + 18 + 25)$
 $= 90 - 63 = 27$

Fifth cell in fourth row $= 90 - (15 + 17 + 24 + 26)$
 $= 90 - 82 = 8$

Now second cell in fifth row $= 90 - (29 + 10 + 11 + 17)$
 $= 90 - 67 = 23$

Third cell in fifth row $= 90 - (6 + 12 + 18 + 24)$
 $= 90 - 60 = 30$

Q.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)

$$\begin{array}{r}
 \begin{array}{cccccc}
 & & 6 & 17 & 13 & \\
 5 & 7 & 8 & 3 & 9 & \\
 - & & 2 & 9 & 8 & 3 \\
 \hline
 5 & 4 & 8 & 5 & 6 &
 \end{array}
 \end{array}$$

checking

$$\begin{array}{r}
 54856 \\
 + 2983 \\
 \hline
 57839
 \end{array}$$

(ii)

$$\begin{array}{r}
 \begin{array}{cccccc}
 & & 1 & 14 & 9 & 17 \\
 9 & 2 & 5 & 8 & 7 & \\
 - & 1 & 0 & 8 & 7 & 9 \\
 \hline
 8 & 1 & 6 & 2 & 8 &
 \end{array}
 \end{array}$$

checking

$$\begin{array}{r}
 81628 \\
 + 10879 \\
 \hline
 92507
 \end{array}$$

(iii)

$$\begin{array}{r}
 \begin{array}{cccccc}
 & & 3 & 9 & 9 & 9 & 10 \\
 4 & 0 & 0 & 0 & 0 & 0 & \\
 - & 9 & 8 & 7 & 9 & 8 & \\
 \hline
 3 & 0 & 1 & 2 & 0 & 2 &
 \end{array}
 \end{array}$$

checking

$$\begin{array}{r}
 301202 \\
 + 98798 \\
 \hline
 400000
 \end{array}$$

(iv)

$$\begin{array}{r}
 \begin{array}{cccccc}
 & & 4 & 9 & 14 & 9 & 14 & 9 & 11 \\
 5 & 0 & 5 & 0 & 5 & 0 & 5 & 0 & 5 \\
 - & 9 & 6 & 9 & 6 & 9 & 6 & & \\
 \hline
 4 & 0 & 8 & 0 & 8 & 0 & 5 & &
 \end{array}
 \end{array}$$

checking

$$\begin{array}{r}
 4080805 \\
 + 969696 \\
 \hline
 5050501
 \end{array}$$

(v)

$$\begin{array}{r}
 \begin{array}{cccccc}
 & & 2 & 9 & 9 & 9 & 9 & 10 \\
 2 & 0 & 0 & 0 & 0 & 0 & 0 & \\
 - & 9 & 7 & 5 & 3 & 1 & & \\
 \hline
 1 & 0 & 2 & 4 & 6 & 9 & &
 \end{array}
 \end{array}$$

checking

$$\begin{array}{r}
 102469 \\
 + 97531 \\
 \hline
 200000
 \end{array}$$

$$\begin{array}{r}
 \text{(VI)} \quad \begin{array}{r} 2912912911 \\ 303030301 \\ - 868686 \\ \hline 2161615 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{Checking} \quad \begin{array}{r} 2161615 \\ + 868686 \\ \hline 3030301 \end{array}
 \end{array}$$

Q3 Replace each * by the correct digit in each of the following.

$$\begin{array}{r}
 \text{(I)} \quad \begin{array}{r} 876 \\ - *3* \\ \hline 6*7 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(II)} \quad \begin{array}{r} 8989 \\ - **34 \\ \hline 34** \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(III)} \quad \begin{array}{r} 6000107 \\ - **8978 \\ \hline 506***** \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(IV)} \quad \begin{array}{r} 1000000 \\ - ***** \\ \hline *7042* \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(V)} \quad \begin{array}{r} 5001003 \\ - **6987 \\ \hline 484***** \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{(VI)} \quad \begin{array}{r} 111111 \\ - *6789 \\ \hline 5432* \end{array}
 \end{array}$$

Solution (I) Since $6 - * = 7$, This Means one is carried away from ten's digit. so it becomes

$$16 - * = 7 \Rightarrow * = 16 - 7 = 9$$

also now ten's digit is 6, so $6 - 3 = 3$

Again $8 - * = 6$

$$\text{Clearly } * = 8 - 6 = 2$$

here

hence it becomes

$$\begin{array}{r} 876 \\ - 235 \\ \hline 637 \end{array}$$

(ii) first we subtract

$$\begin{array}{r} 89 \\ - 34 \\ \hline 55 \end{array}$$

so, result becomes 3455, Now to get Addend we subtract 3455 from 8989.

$$\therefore 8989 - 3455 = 5534$$

hence

$$\begin{array}{r} 8989 \\ - 5534 \\ \hline 3455 \end{array}$$

(iii) we know that its unit digit $17 - 8 = 9$

$$\text{Ten's digit} = 9 - 7 = 2$$

$$\text{hundred's place} = 10 - 9 = 1$$

$$\text{Thousand's place} = 9 - 8 = 1$$

$$\text{Now the addend difference} = 5061129$$

$$\begin{array}{r} \text{To get added} = 6000107 - 5061129 = \\ = 938978 \end{array} \quad \begin{array}{r} 6000107 \\ - 5061129 \\ \hline 938978 \end{array}$$

hence

$$\begin{array}{r} 6000107 \\ - 938978 \\ \hline 5061129 \end{array}$$

(iv) We know that its unit digit $= 10 - 9 = 1$
 on Lakh's place $= 90 = 9$

so, the added difference $= 970429$

$$\begin{array}{r} \text{Now Addend} = \quad 1000000 \\ - \quad 970429 \\ \hline \quad 0029571 \end{array}$$

hence answer is

$$\begin{array}{r} 1000000 \\ - \quad 29571 \\ \hline \quad 970429 \end{array}$$

(v) Number on units place $= 13 - 7 = 6$

Ten's digit $= 9 - 8 = 1$

Hundred's digit $= 9 - 9 = 0$

Thousand's digit $= 10 - 6 = 4$

$\therefore$ Addend difference $= 4844016$

To get addend , 5001003

$$\begin{array}{r} - 4844016 \\ \hline \quad 0156987 \end{array}$$

hence Answer is

$$\begin{array}{r} 5001003 \\ - \quad 156987 \\ \hline \quad 4844016 \end{array}$$

(VI) No. on unit place = $11 - 9 = 2$

$\therefore$ Required Addend difference = 54322

Now to get addend,

$$\begin{array}{r} 111111 \\ - 54322 \\ \hline 56789 \end{array}$$

here, Correct answer is

$$\begin{array}{r} 111111 \\ - 56789 \\ \hline 56322 \end{array}$$

Q.4 What is the difference between the largest number of five digits and the smallest number of 6 digits.

Solution Largest number of five digits = 99999

Smallest no. of 6 digits = 100000

$$\begin{array}{r} \text{Difference} = \begin{array}{r} 100000 \\ - 99999 \\ \hline 00001 \end{array} \end{array}$$

$\therefore$ here Difference = 1

Q.5 Find the difference between the largest number of 4 digits and Smallest number of 7 digits.

Solution Largest no. of 4 digits = 9999

Smallest no. of 7 digits = 1000000

$$\begin{array}{r} \text{hence, Difference} = \begin{array}{r} \overset{0}{1} \overset{0}{0} \overset{0}{0} \overset{0}{0} \overset{0}{0} \overset{0}{0} \overset{0}{0} \overset{1}{0} \\ - \quad \quad \quad 9999 \\ \hline 990001 \end{array} \end{array}$$

$$\text{hence difference} = 990001$$

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

Solution : Money deposited = ₹ 125000
Money withdrawn = ₹ 35425

$$\therefore \text{Money left} = 125000 - 35425$$

$$\begin{array}{r} 125000 \\ - 35425 \\ \hline 89575 \end{array}$$

$$\therefore \text{Amount left in bank account} = ₹ 89575$$

Q.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 : It is given that

$$\begin{array}{lcl} \text{Population of town} & = & 96209 \\ \text{number of men} & = & 29642 \\ \text{number of women} & = & 29167 \end{array}$$

$$\begin{array}{r} \text{Then number of (Men + Women)} = 29642 \\ + 29167 \\ \hline 58809 \end{array}$$

∴ Number of children

$$\begin{array}{r} = 96209 \\ - 58809 \\ \hline 37400 \end{array}$$

hence, number of children are 37400

Q.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 original number = 36490

After interchanging digits, new number = 39460

$$\begin{array}{r} \text{Difference} = \begin{array}{r} 8 \quad 3 \quad 16 \\ 39460 \\ - 36490 \\ \hline 02970 \end{array} \end{array}$$

∴ required number = 2970

Q.9 The population of a town was 59000. If 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 year?

Solution

$$\text{Initial Population} = 59000$$

$$\text{Population Increased} = 4536$$

$$\therefore \text{Increased population} = \begin{array}{r} 59000 \\ + 4536 \\ \hline 63536 \end{array}$$

$$\text{Again no. of Persons died or left} = 9218$$

$$\therefore \text{Population at the end of year} = \begin{array}{r} 63536 \\ - 9218 \\ \hline 54318 \end{array}$$

$$\text{hence, final population of town} = 54318.$$
