

## Exercise 4.1

Q1. Subtract the following by using Ekanyama  
Purvena and Complementary digit.

Ekanyama Purvena  $\Rightarrow$  "By one less than the previous one".

Complementary digit (परममित्रांक)  $\Rightarrow$  Sum of a digit  
or number is equal to 10.

No.	Complementary digit
1	9
2	8
3	7
4	6
5	5
6	4
7	3
8	2
9	1

$$\begin{array}{r} (1) \quad 8 \\ - 5 \\ \hline 2 \end{array} \quad \begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array} +$$

$$(2) \quad \begin{array}{r} 6 \\ - 4 \\ \hline 1 \end{array} \quad \begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array} +$$

$$(3) \quad \begin{array}{r} 7 \\ - 6 \\ \hline 0 \end{array} \quad \begin{array}{r} 4 \\ \times 9 \\ \hline 36 \end{array} +$$

$$(4) \quad \begin{array}{r} 3 \\ - 1 \\ \hline 1 \end{array} \quad \begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array} +$$

$$(5) \quad \begin{array}{r} 5 \\ - 2 \\ \hline 2 \end{array} \quad \begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array} \quad \begin{array}{r} 4 \\ \times 7 \\ \hline 28 \end{array} +$$

$$(6) \quad \begin{array}{r} 9 \\ - 8 \\ \hline 0 \end{array} \quad \begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array} \quad \begin{array}{r} 5 \\ \times 6 \\ \hline 30 \end{array} +$$

$$(7) \quad \begin{array}{r} 4 \\ - 2 \\ \hline 1 \end{array} \quad \begin{array}{r} 6 \\ \times 3 \\ \hline 18 \end{array} \quad \begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array} +$$

$$(8) \quad \begin{array}{r} 7 \\ - 3 \\ \hline 3 \end{array} \quad \begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array} \quad \begin{array}{r} 6 \\ \times 9 \\ \hline 54 \end{array} \quad \begin{array}{r} 4 \\ \times 7 \\ \hline 28 \end{array} +$$

$$(9) \quad \begin{array}{r} 1 \\ - 9 \\ \hline 0 \end{array} \quad \begin{array}{r} 2 \\ \times 7 \\ \hline 14 \end{array} \quad \begin{array}{r} 4 \\ \times 5 \\ \hline 20 \end{array} \quad \begin{array}{r} 5 \\ \times 8 \\ \hline 40 \end{array} +$$

$$(10) \quad \begin{array}{r} 2 \\ - 1 \\ \hline 1 \end{array} \quad \begin{array}{r} 7 \\ \times 5 \\ \hline 35 \end{array} \quad \begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array} +$$

### Exercise 4.2

Q1 Subtract the following by using Ekadhikena Purvena and complementary digit.

Ekadhikena Purvena :- Ekadhikena means one more digit or number.

Complementary digit :- Sum of a digit or number is equal to 10.

No.	Complementary digit
1	9
2	8
3	7
4	6
5	5
6	4
7	3
8	2
9	1

(1.)

$$\begin{array}{r} 2 \\ - 132 \\ \hline 068 \end{array}$$

(2)

$$\begin{array}{r} 5 \\ - 309 \\ \hline 191 \end{array}$$

Purview

digit

is

(3)  $805 +$

$$\begin{array}{r} \cdot \\ 6 \cdot \square 0 \square 8 \\ \underline{1 \quad 9 \quad 7} \end{array}$$

(4)

$$\begin{array}{r} 1 \quad 7 \quad 0 \quad 0 \\ = \quad 9 \quad \square 7 \quad \square 3 \\ \underline{7 \quad 2 \quad 7} \end{array}$$

(5)  $835 +$

$$\begin{array}{r} \cdot \\ 5 \cdot \square 8 \cdot 1 \\ \underline{3 \quad 0 \quad 2 \quad 4} \end{array}$$

(6)

$$\begin{array}{r} 4 \quad 0 \quad 0 \quad 0 \\ - \quad 2 \quad \square 7 \quad \square 3 \quad \square 6 \\ \underline{1 \quad 2 \quad 6 \quad 4} \end{array}$$

(7)  $9700 +$

$$\begin{array}{r} \cdot \\ 4 \cdot \square 9 \cdot \square 0 \cdot \square 4 \\ \underline{4 \quad 7 \quad 9 \quad 6} \end{array}$$

(8)

$$\begin{array}{r} 1 \quad 0 \quad 0 \quad 0 \\ - \quad 8 \quad \square 5 \quad \square 4 \\ \underline{1 \quad 4 \quad 6} \end{array}$$

(9)  $9000 +$

$$\begin{array}{r} \cdot \\ 3 \cdot \square 8 \cdot \square 9 \cdot \square 6 \\ \underline{5 \quad 1 \quad 0 \quad 4} \end{array}$$

(10)

$$\begin{array}{r} 1 \quad 5 \quad 0 \quad 0 \\ - \quad 0 \quad \square 7 \cdot \square 8 \cdot \square 5 \\ \underline{0 \quad 7 \quad 1 \quad 5} \end{array}$$

### Exercise 4.3

Q. Write the deviation of the following w.r.t base 10.

Deviation  $\Rightarrow$  Deviation is the difference of given number and base i.e, if we subtract base from given number, then remainder is called as deviation.

$$\text{Deviation} = \text{Number} - \text{Base}$$

(i)  $14 = 14 - 10 \Rightarrow +4$

(ii)  $11 = 11 - 10 \Rightarrow +1$

(iii)  $8 = 8 - 10 \Rightarrow -2$

(iv)  $9 = 9 - 10 \Rightarrow -1$

(v)  $13 = 13 - 10 \Rightarrow +3$

(vi)  $19 = 19 - 10 \Rightarrow +9$

(vii)  $7 = 7 - 10 \Rightarrow -3$

(viii)  $6 = 6 - 10 \Rightarrow -4$

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Exercise 4.4

Basic Rule  $\rightarrow$

$$\begin{aligned} + / + &= + \\ - / - &= + \\ + / - &= - \\ - / + &= - \end{aligned}$$

Q1. Find the following by using Nikhilam Sutra.

(i)  $12 \times 9$

No.	Devi.
12	+2
9	-1

Base  $\Rightarrow 10$   
Devi.  $\Rightarrow$  No. - Base  
 $\Rightarrow 12 - 10 = 2$   
 $9 - 10 = -1$

(first no + last devi) / I<sup>st</sup> devi  $\times$  II<sup>nd</sup> devi

$$(12 - 1) / +2 \times -1$$

$$11 / -2$$

$$10 / 10 - 2$$

$$10 / 8$$

108 Ans.

(ii)  $15 \times 12$

No.      Devi

15      +5

12      +2

$$(15+2) / +5 \times +2$$

17 / 10

180 Ans.

Base = 10

Devi = No - Base

$$\Rightarrow 15 - 10 \Rightarrow +5$$

$$12 - 10 \Rightarrow +2$$

(iii)  $13 \times 17$

No.      Devi

13      +3

17      +7

$$(13+7) / (+3 \times +7)$$

20 / 21

221 Ans.

Base = 10

Devi = No - Base

$$\Rightarrow 13 - 10 \Rightarrow +3$$

$$17 - 10 \Rightarrow +7$$

(iv)  $8 \times 9$

No.      Devi

8      -2

9      -1

$$(8-1) / -2 \times -1$$

7 / +2

72 Ans.

Base = 10

Devi = No - Base

$$\Rightarrow 8 - 10 \Rightarrow -2$$

$$9 - 10 \Rightarrow -1$$

5.  $14 \times 11$

No.	Bas Devi
14	+4
11	+1

$$\begin{array}{r} (14+1) / +4 \times +1 \\ 15 / 4 \\ \hline 154 \text{ Ans.} \end{array}$$

Base = 10

Devi = No. - Base

$\Rightarrow 14 - 10 = +4$

$11 - 10 = +1$

6.  $9 \times 16$

No.	Devi
9	-1
16	+6

$$\begin{array}{r} (9+6) / -1 \times +6 \\ 15 / -6 \\ 14 / 10 \div 6 \\ 14 / 4 \\ \hline 144 \text{ Ans.} \end{array}$$

Base = 10

Devi = No. - Base

$\Rightarrow 9 - 10 = -1$

$16 - 10 = +6$

7.  $12 \times 13$

No.	Devi
12	+2
13	+3

$$\begin{array}{r} (12+3) / +2 \times +3 \\ 15 / 6 \\ \hline 156 \text{ Ans.} \end{array}$$

Base = 10

Devi = No. - Base

$12 - 10 = +2$

$13 - 10 = +3$



8.  $13 \times 10$

No.	Devi
13	+3
10	0

Base = 10

Devi = No - Base

$\Rightarrow 13 - 10 = +3$

$10 - 10 = 0$

$(13+0) / +3 \times 0$   
 $13 / 0$   
130 Ans

9.  $15 \times 16$

No.	Devi
15	+5
16	+6

Base = 10

Devi = No - Base

$\Rightarrow 15 - 10 = +5$

$16 - 10 = +6$

$(15+6) / 5 \times 6$   
 $21 / 30$   
240 Ans.

10.  $18 \times 12$

No.	Devi
18	+8
12	+2

Base = 10

Devi = No - Base

$\Rightarrow 18 - 10 = +8$

$12 - 10 = +2$

$(18+2) / 8 \times 2$   
 $20 / 16$   
216 Ans.