

Exercise 16.1

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Find the values of the letters in each of the following and give reasons for the steps involved.

1.

$$\begin{array}{r} 3 \quad A \\ + 2 \quad 5 \\ \hline B \quad 2 \\ \hline \end{array}$$

Solution:

Say, $A = 7$ and we get,

$$7 + 5 = 12$$

In which one's place is 2.

Therefore, $A = 7$

And putting 2 and carry over 1, we get

$$B = 6$$

Hence **$A = 7$ and $B = 6$**

2.

$$\begin{array}{r} 4 \quad A \\ + 9 \quad 8 \\ \hline CB \quad 3 \\ \hline \end{array}$$

Solution:

If $A = 5$ and we get,

$$8 + 5 = 13 \text{ in which ones place is } 3.$$

Therefore, $A = 5$ and carry over 1 then

$$B = 4 \text{ and } C = 1$$

$$\text{Hence, } A = 5, B = 4 \text{ and } C = 1$$

3.

$$\begin{array}{r} 1 \quad A \\ \times \quad A \\ \hline 9 \quad A \\ \hline \end{array}$$

Solution:

On putting $A = 1, 2, 3, 4, 5, 6, 7$ and so on and we get,

$$A \times A = 6 \times 6 = 36 \text{ in which ones place is } 6.$$

$$\text{Therefore, } A = 6$$

4.

$$\begin{array}{r} A \quad B \\ + 3 \quad 7 \\ \hline 6 \quad A \\ \hline \end{array}$$

Solution:

Here, we observe that $B = 5$ so that $7 + 5 = 12$

Putting 2 at ones place and carry over 1 and $A = 2$, we get

$$2 + 3 + 1 = 6$$

$$\text{Hence } A = 2 \text{ and } B = 5$$

5.

$$\begin{array}{r} A \quad B \\ \times \quad 3 \\ \hline C \quad A \quad B \end{array}$$

Solution:

Here on putting $B = 0$, we get $0 \times 3 = 0$.

And $A = 5$, then $5 \times 3 = 15$

$A = 5$ and $C = 1$

Hence **$A = 5$, $B = 0$ and $C = 1$**

6.

$$\begin{array}{r} A \quad B \\ \times \quad 5 \\ \hline C \quad A \quad B \end{array}$$

Solution:

On putting $B = 0$, we get $0 \times 5 = 0$ and $A = 5$, then $5 \times 5 = 25$

$A = 5$, $C = 2$

Hence **$A = 5$, $B = 0$ and $C = 2$**

7.

$$\begin{array}{r} A \quad B \\ \times \quad 6 \\ \hline B \quad B \quad B \end{array}$$

Solution:

Here product of B and 6 must be same as ones place digit as B.

$$6 \times 1 = 6, 6 \times 2 = 12, 6 \times 3 = 18, 6 \times 4 = 24$$

On putting $B = 4$, we get the ones digit 4 and remaining two B's value should be 44.

$$\text{Therefore, for } 6 \times 7 = 42 + 2 = 44$$

Hence **A = 7 and B = 4**

8.

$$\begin{array}{r} A \quad 1 \\ + 1 \quad B \\ \hline B \quad 0 \end{array}$$

Solution:

On putting $B = 9$, we get $9 + 1 = 10$

Putting 0 at ones place and carry over 1, we get for $A = 7$

$$7 + 1 + 1 = 9$$

Hence, **A = 7 and B = 9**

9.

$$\begin{array}{r} 2 \quad A \quad B \\ + A \quad B \quad 1 \\ \hline B \quad 1 \quad 8 \end{array}$$

Solution:

On putting $B = 7$, we get $7 + 1 = 8$

Now $A = 4$, then $4 + 7 = 11$

Putting 1 at tens place and carry over 1, we get

$$2 + 4 + 1 = 7$$

Hence, **$A = 4$ and $B = 7$**

10.

$$\begin{array}{r} 12A \\ + 6AB \\ \hline A09 \end{array}$$

Solution:

Putting $A = 8$ and $B = 1$, we get

$$8 + 1 = 9$$

Now, again we add $2 + 8 = 10$

Tens place digit is '0' and carry over 1. Now $1 + 6 + 1 = 8 = A$

Hence **$A = 8$ and $B = 1$**