NCERT SOLUTIONS CLASS-8 MATHS CHAPTER-16 EXERCISE-16.1

1. ***In the given addition, find the value of the letters and give reason.***

4 A

+ 3 4

———-

B 3

Answer:

When we add A and 4, we are getting number 1 that is it gives number 1 in onesplace. This is possible only when A is number 9. Therefore, adding A that is 9 to 4, it gives 13. 1 will be carry for the next step.

In next step, the addition is 1 + 4 + 3 = 8. So the addition is as given below.

4 9

+ 3 4

———

8 3

Therefore, B is 8.

So, A and B are 4 and 8 respectively.

2. ***In the given addition, find the value of the letters and also give reason.***

5 X

+ 8 7

———-

Y Z 2

Answer:

The addition of X and 7 gives 2 that is a no. whose ones place is 2. It is possible only when digit X is 5. So, the addition of 5 and 7 gives 12. 1 will be carry for the next step.

1 + 5 + 8 = 14

Hence, the addition is as given below.

5 5

+ 8 7

————

1 4 2

The value of X, Y and Z is 5, 1 and 4 respectively.

3. ***In the given multiplication, find the value of the letters and give reason.***

2 Y

× Y

————

1 2 Y

Answer:

The multiplication of a number with itself gives a number whose ones placeis that number itself. This occurs when that number is 1, 5 or 6.

Y = 1

The multiplication will be 21 × 1 = 21. Here, there is hundreds place as well. So, Y = 1 is not possible.

Y = 5

The multiplication will be 25 × 5 = 125. Here, tens as well as hundreds place match. So, Y = 5 is the correct answer.

4. ***In the given addition, find the value of the letters and also give reason.***

X Y

+ 4 6

———

7 X

Answer:

The addition of X and 3 is giving 7. There can be two cases.

(i)No carry

The value of X will be 3 so we get 7 when we add 3 and 4 that is 3 + 4 = 7. Now consider the first step, Y + 6 = 3 so the value of Y has to be 7. Then we get 3 in ones place. But the value X is single digit so it is not possible.

(ii) With carry

The value of X will be 2 as 1 + 2 + 4 = 7. Now consider the first step where Y is added to 6 to give 2 in ones place. For that the value of Y will be 6 + Y = 12. Therefore, the value of Y is 6.

2 6

+ 4 6

———

7 2

Hence, the value of X and Y is 2 and 6 respectively.

5. ***In the given multiplication, find the value of the letters and give reason.***

X Y

× 3

———-

Z X Y

Answer:

When 3is multiplied with Y it gives a number whose onesplace is Y again. So, Y must be 5 or 0.

Let Y = 5

First step: 5 × 3 = 15

1 will be carried forward. Therefore, (X × 3) + 1 = ZX. This is not possible for any number.

Therefore, value of Y has to be 0 only.

If Y = 0, then there will be no carry. So we get X × 3 = ZX.

When a number is multiplied with 3, its ones placeshould be the number itself. That is possible only for X = 0 or 5. But X cannot be 0 as it has to be two digit numbers. Therefore, the value of X is 5. Thus we get the following

5 0

× 3

———

15 0

The value of X, Y and Z is 5, 0 and 1 respectively.

6. ***In the given multiplication, find the value of the letters and also give reason.***

6. ***In the given multiplication, find the value of the letters and also give reason.***

X Y

× 5

———

Z X Y

Answer:

When 5 is multiplied with Y it gives a number whose ones placeis Y again. So, Y must be 5 or 0.

Let Y = 5

First step: 5 × Y = 5 × 5 = 25

2 will be carried forward. Therefore, (X × 5) + 2 = ZX. This is possible for number X = 2 or 7.

The multiplication is as given below.

2 5	7 5
× 5	× 5
——-	——-
1 2 5	3 7 5

Let Y = 0

First step: 5 × Y = 5

5 × 0 = 0

There will not be any carry in this case.

In the next step, 5 × X = ZX

This can happen only when the value of X is 5 or 0.

However, X cannot be 0 as XY is two digit numbers. Therefore, the value of X is 5.

5 0

× 5

———

2 5 0

Therefore, there three possible values of X, Y and Z.

(i) 2, 5 and 1 respectively

(ii) 5, 0 and 2 respectively

(iii) 7, 5 and 3 respectively

7. ***In the given multiplication, find the value of the letters and also give reason.***

X Y

× 6

———-

Y YY

Answer:

When 6 is multiplied with Y, it gives a number whose ones placeis Y. It is possible only if Y = 0, 2, 4, 6 or 8.

Y = 0;

The product will be 0 in this case so it is not possible.

Y = 2;

Y × 6 = 12 and 1 will be carried forward for the next step.

6X + 1 = YY = 22. Then integer value of X is not possible.

Y = 6;

Y × 6 = 36 and 3 will be carried forward for the next step.

6X + 3 = YY = 66. Then integer value of X is not possible.

Y = 8;

Y × 6 = 48 and 4 will be carried forward for the next step.

6X + 4 = YY = 88.

6X = 84.

X = 14

But X is single digit number.

Then value of X is not possible.

Y = 4;

Y × 6 = 24 and 2 will be carried forward for the next step.

6X + 2 = YY = 44.

6X = 42.

X = 7

The multiplication is given below

7 4

× 6

———-

4 4 4

Thus integer value of X and Y is 7 and 4 respectively.

8. ***In the given addition, find the value of the letters and also give reason.***

X 1

+ 1 Y

———

Y 0

Answer:

When 1 is added to Y, it gives 0 that is a number whose ones place is 0. This is possible when digit Y is 9.

So the addition of 1 and Y will be 10 so 1 will be carried forward for the next step.

In the next step,

1+X+1=9

Therefore, X is 7.

1 + 7 + 1 = 9 = Y

Hence, the addition is as given below.

7 1

+ 1 9

———

9 0

Thus value of X and Y is 7 and 9 respectively.

9. ***In the given addition, find the value of the letters and also give reason.***

2 X Y

+ X Y 1

———-

Y 1 8

Answer:

When 1 is added to Y, it gives 8 that is a number whose ones place is 8. This is possible when digit Y is 7.

In the next step, X + Y = 1. Therefore, the value of X is 4.

4 + 7 = 11 and 1 will be carried forward for the next step.

In the next step,

1+ 2 + X = Y

1+ 2 + 4 = 7

Hence, the addition is as given below.

2 4 7

+ 4 7 1

———

7 1 8

Thus value of X and Y is 4 and 7 respectively.

10. ***In the given addition, find the value of the letters and also give reason.***

1 2 X

+ 6X Y

———-

X 0 9

Answer:

When X is added to Y, it gives 9 that is a number whose ones place is 9.Sum can be 9 only as summation of two single digits cannot be 19. So no carry generated.

In the next step, X + 2 = 0

It is possible if X = 8.

Therefore, 2 + 8 = 10 and 1 will be carried forward for the next step.

1 + 1 + 6 = 8. Therefore, value of X = 8.

When X is added to Y, it gives 9.

X + Y = 9

8 + Y = 9

Therefore, value of Y = 1

1 2 8

+ 6 8 1

———————

8 0 9

Thus value of X and Y is 8 and 1 respectively.