

## CHAPTER – 2

### Whole Numbers

#### EXERCISE 2.3

##### Q. 1

Which of the following will not represents zero:

(a)  $1 + 0$       (b)  $0 \times 0$

(c)  $\frac{0}{2}$       (d)  $\frac{10-10}{2}$

Answer:

**a.**  $1 + 0 = 1$

It does not represent 0.

**b.**  $0 \times 0 = 0$

It does represent 0.

**c.**  $\frac{0}{2} = 0$

It does represent 0.

**d.**  $\frac{10-10}{2} = 0$

It does represent 0.

##### Q. 2

If the product of two whole numbers is zero, can we say that one or both of them will be zero? Justify through examples.

Answer:

Yes, if the product of two whole numbers is zero, then one of them will be 0.

For example-

$$1 \times 0 = 0$$

$$0 \times 7 = 0$$

Yes, if the product of two whole numbers is zero, then both may also be 0.

For example-

$$0 \times 0 = 0$$

### **Q. 3**

If the product of two whole numbers is 1, can we say that one or both of them will be 1? Justify through examples.

Answer:

If the product of two numbers is 1, then both the numbers need to be 1.

Example -

$$1 \times 1 = 1$$

However, if only one number is 1 then,

Example –

$$1 \times 9 = 9$$

So,

We can say that the product of two whole numbers is 1 only when, both 1.

#### **Q. 4**

Find using distributive property:

(a)  $728 \times 101$       (b)  $5437 \times 1001$

(c)  $824 \times 25$       (d)  $4275 \times 125$

(e)  $504 \times 35$ .

Answer:

Distributive property is,

$$a(b + c) = ab + ac$$

**a.**  $728 \times 101$   
 $= 728 \times (100 + 1)$   
 $= 728 \times 100 + 728 \times 1$   
 $= 72800 + 728 = 73528$

**b.**  $5437 \times 1001$   
 $= 5437 \times (1000 + 1)$   
 $= 5437 \times 1000 + 5437 \times 1$   
 $= 5437000 + 5437$   
 $= 5442437$

**c.**  $824 \times 25$

$$\begin{aligned}
&= (800 + 24) \times 25 \\
&= (800 + 25 - 1) \times 25 \\
&= 800 \times 25 + 25 \times 25 - 1 \times 25 \\
&= 20000 + 625 - 25 \\
&= 20000 + 600 \\
&= 20600
\end{aligned}$$

**d.**  $4275 \times 125$

$$\begin{aligned}
&= (4000 + 200 + 100 - 25) \times 125 \\
&= 4000 \times 125 + 200 \times 125 + 100 \times 125 - 25 \times 125 \\
&= 500000 + 25000 + 12500 - 3125 \\
&= 534375
\end{aligned}$$

**e.**  $504 \times 35$

$$\begin{aligned}
&= (500 + 4) \times 35 \\
&= 500 \times 35 + 4 \times 35 \\
&= 17500 + 140 \\
&= 17640
\end{aligned}$$

**Q. 5**

Study the pattern:

$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

$$12345 \times 8 + 5 = 98765$$

Write the next two steps. Can you say how the pattern works?

Answer:

From the given pattern, the 1st step is:  $1 \times 8 + 1 = 9$

And the **2nd step:  $12 \times 8 + 2 = 98$** , which can be written as:

$$(11 + 1) \times 8 + 2$$

On following distributive property, we get,

$$= (11 \times 8) + (1 \times 8) + 2$$

$$= 88 + 8 + 2 = 98$$

Therefore, we can write the **3rd step:  $123 \times 8 + 3 = 987$**  as,

$$= (111 + 11 + 1) \times 8 + 3$$

$$= 111 \times 8 + 11 \times 8 + 1 \times 8 + 3$$

$$= 888 + 88 + 8 + 3 = 987$$

Similarly, **4th step:  $1234 \times 8 + 4 = 9876$**  as,

$$= (1111 + 111 + 11 + 1) \times 8 + 4$$

$$= 1111 \times 8 + 111 \times 8 + 11 \times 8 + 1 \times 8 + 4$$

$$= 8888 + 888 + 88 + 8 + 4 = 9876$$

In the same way, the next steps are:

**5th step:  $12345 \times 8 + 5$ , can be written as,**

$$\begin{aligned} &= (111111 + 11111 + 1111 + 111 + 11 + 1) \times 8 + 5 \\ &= 111111 \times 8 + 11111 \times 8 + 1111 \times 8 + 111 \times 8 + 11 \times 8 \\ &\quad + 1 \times 8 + 5 = 888888 + 88888 + 8888 + 888 + 88 + 8 + 6 \\ &= 98765 \end{aligned}$$

**Thus, the 5th term is :  $12345 \times 8 + 5 = 98765$**

**Now, the 6th step:  $123456 \times 8 + 6$  can be written as,**

$$= (1111111 + 111111 + 11111 + 1111 + 111 + 11 + 1) \times 8 + 7$$

$$= 1111111 \times 8 + 111111 \times 8 + 11111 \times 8 + 1111 \times 8 + 111 \times 8 + 11 \times 8 + 1 \times 8 + 7$$

$$\begin{aligned} &= 8888888 + 888888 + 88888 + 8888 + 888 + 88 + 8 + 7 \\ &= 9876543 \end{aligned}$$

**Thus, the 6th step is:  $123456 \times 8 + 6 = 9876543$**