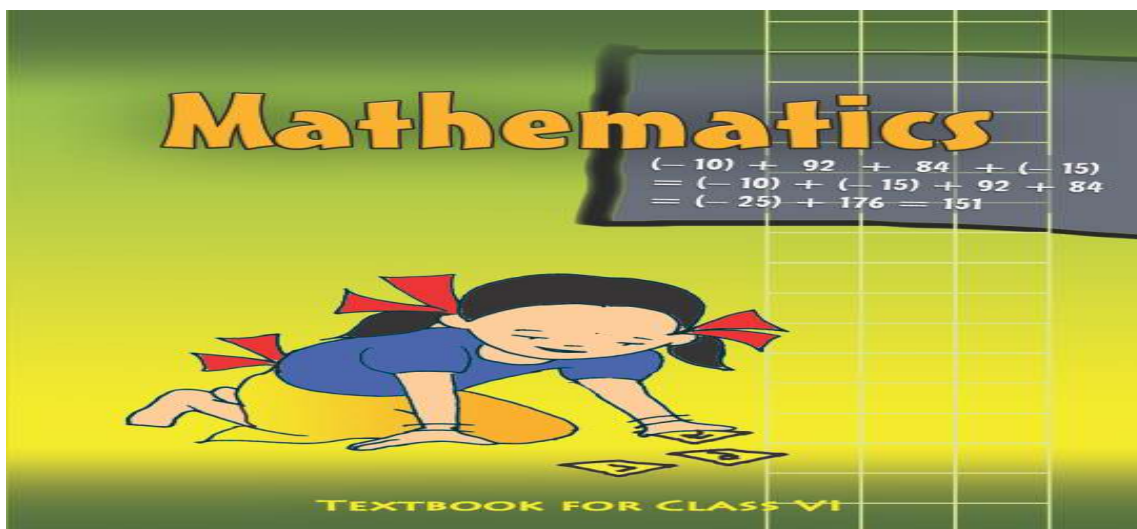


Date-_____



पुर्णा International School
Shree Swaminarayan Gurukul, Zundal

CLASS-VI
MATHEMATICS
SPECIMEN COPY
YEAR-2020-21



Date-_____

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LESSON-1
KNOWLEDGE OF NUMBERS

***SUMMARY**

- **INTRODUCTION**
- **COMPARING NUMBERS**
- **ASCENDING ORDER**
- **DESCENDING ORDER**
- **SHIFTING DIGITS**

Mathematics
(Ex. 1.1)

Question 1. Fill in the blanks:

- (a) 1 lakh = _____ ten thousand
- (b) 1 million = _____ hundred thousand
- (c) 1 crore = _____ ten lakh
- (d) 1 crore = _____ million
- (e) 1 million = _____ lakh

Answer:

- (a) 10
- (b) 10
- (c) 10
- (d) 10
- (e) 10

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Question 2. Place commas correctly and write the numerals:

- (a) Seventy-three lakh seventy-five thousand three hundred seven.
- (b) Nine crore five lakh forty-one.
- (c) Seven crore fifty-two lakh twenty-one thousand three hundred two.
- (d) Fifty-eight million four hundred twenty-three thousand two hundred two.
- (e) Twenty-three lakh thirty thousand ten.

Answer:

- (a) 73,75,307
- (b) 9,05,00,041
- (c) 7,52,21,302
- (d) 58,423,202
- (e) 23,30,010

Question 3. Insert commas suitable and write the names according to Indian system of numeration:

- (a) 87595762
- (b) 8546283
- (c) 99900046
- (d) 98432701

Answer:

- (a) 8,75,95,762 →→ Eight crore seventy-five lakh ninety-five thousand seven hundred sixty-two
- (b) 85,46,283 →→ Eight-five lakh forty-six thousand two hundred eighty-three
- (c) 9,99,00,046 →→ Nine crore ninety-nine lakh forty-six
- (d) 9,84,32,701 →→ Nine crore eighty-four lakh thirty-two thousand seven hundred one

Question 4. Insert commas suitable and write the names according to International system of numeration:

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- (a) 78921092
- (b) 7452283
- (c) 99985102
- (d) 48049831

Answer:

- (a) 78,921,092 →→ Seventy-eight million nine hundred twenty-one thousand ninety-two
- (b) 7,452,483 →→ Seven million four hundred fifty-two thousand two hundred eighty-three
- (c) 99,985,102 →→ Ninety-nine million nine hundred eighty-five thousand one hundred two
- (d) 48,049,831 →→ Forty-eight million forty-nine thousand eight hundred thirty-one

EXERCISE -1.2

Question 1. A book exhibition was held for four days in a school. The number of tickets sold at the counter on the first, second, third and final day was respectively 1094, 1812, 2050 and 2751. Find the total number of tickets sold on all the four days.

Answer:

Number of tickets sold on first day = 1,094

Number of tickets sold on second day = 1,812

Number of tickets sold on third day = 2,050

Number of tickets sold on fourth day = + 2,751

Total tickets sold = 7,707

Therefore, 7,707 tickets were sold on all the four days.

Question 2. Shekhar is a famous cricket player. He has so far scored 6980 runs in test matches. He wishes to complete 10,000 runs. How many more runs does he need?

Answer:

Runs to achieve = 10,000

Runs scored = - 6,980

Runs required = 3,020

Therefore, he needs 3,020 more runs.

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Question 3. In an election, the successful candidate registered 5,77,500 votes and his nearest rival secured 3,48,700 votes. By what margin did the successful candidate win the election?

Answer:

Number of votes secured by successful candidates = 5,77,500

Number of votes secured by his nearest rival = – 3,48,700

Margin between them = 2,28,800

Therefore, the successful candidate won by a margin of 2,28,800 votes.

Question 4. Kirti Bookstore sold books worth 2,85,891 in the first week of June and books worth 4,00,768 in the second week of the month. How much was the sale for the two weeks together? In which week was the sale greater and by how much?

Answer:

Books sold in first week = 2,85,891

Books sold in second week = + 4,00,768

Total books sold = 6,86,659

Since, 4,00,768 > 2,85,891

Therefore sale of second week is greater than that of first week.

Books sold in second week = 4,00,768

Books sold in first week = – 2,85,891

More books sold in second week = 1,14,877

Therefore, 1,14,877 more books were sold in second week.

Question 5. Find the difference between the greatest and the least number that can be written using the digits 6, 2, 7, 4, 3 each only once.

Answer:

Greatest five-digit number using digits 6,2,7,4,3 = 76432

Smallest five-digit number using digits 6,2,7,4,3 = – 23467

Difference = 52965

Therefore the difference is 52965.

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Question 6. A machine, on an average, manufactures 2,825 screws a day. How many screws did it produce in the month of January 2006?

Answer:

Number of screws manufactured in one day = 2,825

Number of days in the month of January (31 days) = 2,825 x 31

= 87,575

Therefore the machine produced 87,575 screws in the month of January.

Question 7. A merchant had 78,592 with her. She placed an order for purchasing 40 radio sets at 1,200 each. How much money will remain with her after the purchase?

Answer:

Cost of one radio = 1200

Cost of 40 radios = 1200 x 40 = 48,000

Now, Total money with merchant = 78,592

Money spent by her = - 48,000

Money left with her = 30,592

Therefore, ` 30,592 will remain with her after the purchase.

Question 8. A student multiplied 7236 by 65 instead of multiplying by 56. By how much was his answer greater than the correct answer?

Answer:

Wrong answer = 7236 x 65

7236x 65

36180

43416 x

470340

Correct answer = 7236 x 56

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7236x 56

43416

36180 x

405216

Difference in answers = $470340 - 405216$

= 65,124

Question 9. To stitch a shirt 2 m 15 cm cloth is needed. Out of 40 m cloth, how many shirts can be stitched and how much cloth will remain?

Answer:

Cloth required to stitch one shirt = 2 m 15 cm

= $2 \times 100 \text{ cm} + 15 \text{ cm}$

= 215 cm

Length of cloth = 40 m = $40 \times 100 \text{ cm} = 4000 \text{ cm}$

Number of shirts can be stitched = $4000 \div 215$

Therefore, 18 shirts can be stitched and 130 cm (1 m 30 cm) cloth will remain.

Question 10. Medicine is packed in boxes, each weighing 4 kg 500 g. How many such boxes can be loaded in a van which cannot carry beyond 800 kg?

Answer:

The weight of one box = 4 kg 500 g = $4 \times 1000 \text{ g} + 500 \text{ g} = 4500 \text{ g}$

Maximum load can be loaded in van = 800 kg = $800 \times 1000 \text{ g} = 800000 \text{ g}$

Number of boxes = $800000 \div 4500$

Therefore, 177 boxes can be loaded.

Question 11. The distance between the school and the house of a student's house is 1 km 875 m. Everyday she walks both ways. Find the total distance covered by her in six days.

Answer:

Distance between school and home = 1.875 km

Distance between home and school = + 1.875 km

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Total distance covered in one day = 3.750 km

Distance covered in six days = $3.750 \times 6 = 22.500$ km

Therefore, 22 km 500 m distance covered in six days.

Question 12. A vessel has 4 liters and 500 ml of curd. In how many glasses each of 25 ml capacity, can it be filled?

Answer:

Capacity of curd in a vessel = 4 liters 500 ml = 4×1000 ml + 500 ml = 4500 ml

Capacity of one glass = 25 ml

Number of glasses can be filled = $4500 \div 25$

Therefore, 180 glasses can be filled by curd.

(Ex. 1.3)

Question 1. Estimate each of the following using general rule:

(a) $730 + 998$

(b) $796 - 314$

(c) $12,904 + 2,888$

(d) $28,292 - 21,496$

Answer:

(a) 73 round off to 700
998 round off to 1000

Estimated sum = 1700

(b) 796 round off to 800
314 round off to 300

Estimated sum = 500

(c) 12904 round off to 13000
2888 round off to 3000

Estimated sum = 16000

(d) 28292 round off to 28000
21496 round off to 21000

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Estimated difference= 7000

Question 2. Give a rough estimate (by rounding off to nearest hundreds) and also a closer estimate (by rounding off to nearest tens):

(a) $439 + 334 + 4317$

(b) $1,08737 - 47,599$

(c) $8325 - 491$

(d) $4,89348 - 48,365$

Answer:

(a) 439 round off to 400

334 round off to 300

4317 round off to 4300

Estimated sum = 5000

(b) 108734 round off to 108700

47599 round off to 47600

Estimated difference = 61100

(c) 8325 round off to 8300

491 round off to 500

Estimated difference = 7800

(d) 489348 round off to 489300

48365 round off to 48400

Estimated difference = 440900

Question 3. Estimate the following products using general rule:

(a) 578×161

(b) 5281×3491

(c) 1291×592

(d) 9250×29

Answer:

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(a) 578×161

578 round off to 600

161 round off to 200

The estimated product = $600 \times 200 = 1,20,000$

(b) 5281×3491

5281 round of to 5,000

3491 round off to 3,500

The estimated product = $5,000 \times 3,500 = 1,75,00,000$

(c) 1291×592

1291 round off to 1300

592 round off to 600

The estimated product = $1300 \times 600 = 7,80,000$

(d) 9250×29

9250 round off to 10,000

229 round off to 30

The estimated product = $10,000 \times 30 = 3,00,000$

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LESSON-2

WHOLE NUMBER

* SUMMARY

- INTRODUCTION
- PREDECESSOR AND SUCCESSOR
- WHOLE NUMBER
- THE NUMBER LINE
- ADDITION ON THE NUMBER LINE
- SUBTRACTION ON THE NUMBER LINE
- MULTIPLICATION ON THE NUMBER LINE
- PROPERTIES OF WHOLE NUMBERS
- CLOSURE PROPERTY
- COMMUTATIVE PROPERTY
- ASSOCIATIVE PROPERTY
- DISTRIBUTIVITY OF MULTIPLICATION OVER ADDITION

Whole number → The **whole numbers** are the number without fractions and it is a collection of positive integers and zero. It is represented as “W” and the set of numbers are $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, \dots\}$

Whole Numbers Properties

The properties of whole numbers are based on arithmetic operations such as addition, subtraction, division and multiplication. Two whole numbers if added, subtracted or multiplied, will give a whole number itself. In the division method, we can get a fraction as a result also. Now let us see some more properties here;

Closure Property

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They can be closed under addition and multiplication, i.e., if x and y are two whole numbers then x , y or $x+y$ is also a whole number.

Commutative Property of Addition and Multiplication

The sum and product of two whole numbers will be the same whatever the order they are added or multiplied in, i.e., if x and y are two whole numbers $x+y=y+x$ and $x.y=y.x$

Additive identity

When a whole number is added to 0, its value remains unchanged, i.e., if x is a whole number then $x+0=0+x=x$

Multiplicative identity

When a whole number is multiplied by 1, its value remains unchanged, i.e., if x is a whole number then $x.1=1.x=x$

Associative Property

When whole numbers are being added or multiplied as a set, they can be grouped in any order, and the result will be the same, i.e. if x , y and z are whole numbers then $x+(y+z)=(x+y)+z$ and $x.(y.z)=(x.y).z$

Distributive Property

If x, y and z are three whole numbers, the distributive property of multiplication over addition is $x.(y+z)=(x.y)+(x.z)$, similarly, the distributive property of multiplication over subtraction is $x.(y-z)=(x.y)-(x.z)$

Multiplication by zero

When a whole number is multiplied to 0, the result is always 0, i.e., $x.0=0.x=0$

Division by zero

Division of a whole number by 0 is not defined, i.e., if x is a whole number then $x/0$ is not defined.

Difference Between Whole Numbers and Natural Numbers

Difference Between Whole Numbers & Natural Numbers	
Whole Numbers	Natural Numbers
Whole Numbers: {0, 1, 2, 3, 4, 5, 6,.....}	Natural Numbers: {1, 2, 3, 4, 5, 6,.....}

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Difference Between Whole Numbers & Natural Numbers

Counting starts from 0	Counting starts from 1
All whole numbers are not natural numbers	All Natural numbers are whole numbers

Can Whole Numbers be Negative?

The whole number can't be negative!

As per definition: { 0,1,2,3,4,5,6,7,.....till positive infinity} are whole numbers. There is no place for negative numbers.

Is 0 a whole number?

The set of numbers contains all Natural Numbers, along with Zero. So yes, 0 (zero) is not only a whole number but the first whole number.

Whole Numbers Examples

Example 1: Are 100, 227, 198, 4321 whole numbers?

Solution: Yes. 100, 227, 198, 4321 are all whole numbers.

Example 2: Solve $10 \times (5 + 10)$ using the distributive property.

Solution: The whole numbers have following distributive properties: $x \times (y+z) = (x \times y) + (x \times z)$

$$10 \times (5 + 10) = (10 \times 5) + (10 \times 10)$$

$$= 50 + 100$$

$$= 150$$

This implies $10 \times (5 + 10) = 150$

Ex. 2.1)

Question 1. Write the next three natural numbers after 10999.

Answer:

$$10,999 + 1 = 11,000$$

$$11,000 + 1 = 11,001$$

$$11,001 + 1 = 11,002$$

Question 2 . Write the three whole numbers occurring just before 10001.

Answer:

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$$10,001 - 1 = 10,000$$

$$10,000 - 1 = 9,999$$

$$9,999 - 1 = 9,998$$

Question 3. Which is the smallest whole number?

Answer: '0' (zero) is the smallest whole number.

Question 4. How many whole numbers are there between 32 and 53?

Answer: $53 - 32 - 1 = 20$

There are 20 whole numbers between 32 and 53.

Question 5. Write the successor of:

(a) 2440701

(b) 100199

(c) 1099999

(d) 2345670

Answer:

(a) Successor of 2440701 is $2440701 + 1 = 2440702$

(b) Successor of 100199 is $100199 + 1 = 100200$

(c) Successor of 1099999 is $1099999 + 1 = 1100000$

(d) Successor of 2345670 is $2345670 + 1 = 2345671$

Question 6. Write the predecessor of:

(a) 94

(b) 10000

(c) 208090

(d) 7654321

Answer:

(a) The predecessor of 94 is $94 - 1 = 93$

(b) The predecessor of 10000 is $10000 - 1 = 9999$

(c) The predecessor of 208090 is $208090 - 1 = 208089$

(d) The predecessor of 7654321 is $7654321 - 1 = 7654320$

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Question 7. In each of the following pairs of numbers, state which whole number is on the left of the other number on the number line. Also write them with the appropriate sign ($>$, $<$) between them.

- (a) 530, 503
- (b) 370, 307
- (c) 98765, 56789
- (d) 9830415, 10023001

Answer:

- (a) $530 > 503$; So 503 appear on left side of 530 on number line.
- (b) $370 > 307$; So 307 appear on left side of 370 on number line.
- (c) $98765 > 56789$; So 56789 appear on left side of 98765 on number line.
- (d) $9830415 < 10023001$; So 9830415 appear on left side of 10023001 on number line.

Question 8. Which of the following statements are true (T) and which are false (F):

- (a) Zero is the smallest natural number. False
- (b) 400 is the predecessor of 399. false
- (c) Zero is the smallest whole number. true
- (d) 600 is the successor of 599. true
- (e) All natural numbers are whole numbers. true
- (f) All whole numbers are natural numbers. false
- (g) The predecessor of a two digit number is never a single digit number. false
- (h) 1 is the smallest whole number. false
- (I) The natural number 1 has no predecessor. true
- (j) The whole number 1 has no predecessor false.
- (k) The whole number 13 lies between 11 and 12. false
- (l) The whole number 0 has no predecessor. true
- (m) The successor of a two digit number is always a two digit number false

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(Ex. 2.2)

Question 1. Find the sum by suitable rearrangement:

(a) $837 + 208 + 363$

(b) $1962 + 453 + 1538 + 647$

Answer:

(a) $837 + 208 + 363$

$= (837 + 363) + 208$

$= 1200 + 208$

$= 1408$

(b) $1962 + 453 + 1538 + 647$

$= (1962 + 1538) + (453 + 647)$

$= 3500 + 1100$

$= 4600$

Question 2. Find the product by suitable arrangement:

Answer:

(a) $2 \times 1768 \times 50$

$= (2 \times 50) \times 1768$

$= 100 \times 1768$

$= 176800$

(b) $4 \times 166 \times 25$

$= (4 \times 25) \times 166$

$= 100 \times 166$

$= 16600$

(c) $8 \times 291 \times 125$

$= (8 \times 125) \times 291$

$= 1000 \times 291$

$= 291000$

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$$(d) 625 \times 279 \times 16$$

$$= (625 \times 16) \times 279$$

$$= 10000 \times 279$$

$$= 2790000$$

$$(e) 285 \times 5 \times 60$$

$$= 284 \times (5 \times 60)$$

$$= 284 \times 300$$

$$= 85500$$

$$(f) 125 \times 40 \times 8 \times 25$$

$$= (125 \times 8) \times (40 \times 25)$$

$$= 1000 \times 1000$$

$$= 1000000$$

Question 3. Find the value of the following:

$$(a) 297 \times 17 + 297 \times 3$$

$$(b) 54279 \times 92 + 8 \times 54279$$

$$(c) 81265 \times 169 - 81265 \times 69$$

$$(d) 3845 \times 5 \times 782 + 769 \times 25 \times 218$$

Answer:

$$(a) 297 \times 17 + 297 \times 3$$

$$= 297 \times (17 + 3)$$

$$= 297 \times 20$$

$$= 5940$$

$$(b) 54279 \times 92 + 8 \times 54279$$

$$= 54279 \times (92 + 8)$$

$$= 54279 \times 100$$

$$= 5427900$$

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$$(c) 81265 \times 169 - 81265 \times 69$$

$$= 81265 \times (169 - 69)$$

$$= 81265 \times 100$$

$$= 8126500$$

$$(d) 3845 \times 5 \times 782 + 769 \times 25 \times 218$$

$$= 3845 \times 5 \times 782 + 769 \times 5 \times 5 \times 218$$

$$= 3845 \times 5 \times 782 + 3845 \times 5 \times 218$$

$$= 3845 \times 5 \times (782 + 218)$$

$$= 3845 \times 5 \times 1000$$

$$= 19225000$$

Question 4. Find the product using suitable properties:

(a) 738×103

(b) 854×102

(c) 258×1008

(d) 1005×168

Answer:

(a) 738×103

$$= 738 \times (100 + 3)$$

$$= 738 \times 100 + 738 \times 3$$

$$= 73800 + 2214$$

$$= 76014$$

(b) 854×102

$$= 854 \times (100 + 2)$$

$$= 854 \times 100 + 854 \times 2$$

$$= 85400 + 1708$$

$$= 87108$$

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$$\begin{aligned} & \text{(c) } 258 \times 1008 \\ & = 258 \times (1000 + 8) \\ & = 258 \times 1000 + 258 \times 8 \\ & = 258000 + 2064 \\ & = 260064 \end{aligned}$$

$$\begin{aligned} & \text{(d) } 1005 \times 168 \\ & = (1000 + 5) \times 168 \\ & = 1000 \times 168 + 5 \times 168 \\ & = 168000 + 840 \\ & = 168840 \end{aligned}$$

Question 5. A taxi- driver, filled his car petrol tank with 40 liters of petrol on Monday. The next day, he filled the tank with 50 liters of petrol. If the petrol costs ` 44 per liter, how much did he spend in all on petrol?

Answer:

Petrol filled on Monday = 40 liters

Petrol filled on next day = 50 liters

Total petrol filled = 90 liters

Now, Cost of 1 liter petrol = ` 44

Cost of 90 liters petrol = 44 x 90

$$= 44 \times (100 - 10)$$

$$= 44 \times 100 - 44 \times 10$$

$$= 4400 - 440$$

$$= ` 3960$$

Therefore, he spent ` 3960 on petrol.

Question 6. A vendor supplies 32 liters of milk to a hotel in a morning and 68 liters of milk in the evening. If the milk costs ` 15 per liter, how much money is due to the vendor per day?

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Answer:

Supply of milk in morning = 32 liters

Supply of milk in evening = 68 liters

Total supply = $32 + 68 = 100$ liters

Now Cost of 1 liter milk = ` 15

Cost of 100 liters milk = $15 \times 100 = ` 1500$

Therefore, ` 1500 is due to the vendor per day.

Question 7. Match the following:

Answer:

(i) $425 \times 136 = 425 \times (6 + 30 + 100)$ (c) Distributivity of multiplication over addition

(ii) $2 \times 49 \times 50 = 2 \times 50 \times 49$ (a) Commutativity under multiplication

(iii) $80 + 2005 + 20 = 80 + 20 + 2005$ (b) Commutativity under addition

(Ex. 2.3)

Question 1. Which of the following will not represent zero:

(a) $1 + 0$

(b) 0×0

(c) $0/2$

(d) $10 - 10/2$

Answer: (a) [$1 + 0$ is equal to 1]

Question 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 we multiply any number with zero the resultant product will be zero.

Example: $2 \times 0 = 0$, $5 \times 0 = 0$, $9 \times 0 = 0$

If both numbers are zero, then the result also be zero.

$0 \times 0 = 0$

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Question 3. If the product of two whole number is 1, can we say that one or both of them will be 1? Justify through examples.

Answer:

If only one number be 1 then the product cannot be 1.

Examples: $5 \times 1 = 5$, $4 \times 1 = 4$, $8 \times 1 = 8$

If both number are 1, then the product is 1

$$1 \times 1 = 1$$

Question 4. Find using distributive property:

(a) 728×101

(b) 5437×1001

(c) 824×25

(d) 4275×125

(e) 504×35

Answer:

(a) 728×101

$$= 728 \times (100 + 1)$$

$$= 728 \times 100 + 728 \times 1$$

$$= 72800 + 728$$

$$= 73528$$

(b) 5437×1001

$$= 5437 \times (1000 + 1)$$

$$= 5437 \times 1000 + 5437 \times 1$$

$$= 5437000 + 5437$$

$$= 5442437$$

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$$\begin{aligned} & \text{(c) } 824 \times 25 \\ & = 824 \times (20 + 5) \\ & = 824 \times 20 + 824 \times 5 \\ & = 16480 + 4120 \\ & = 20600 \end{aligned}$$

$$\begin{aligned} & \text{(d) } 4275 \times 125 \\ & = 4275 \times (100 + 20 + 5) \\ & = 4275 \times 100 + 4275 \times 20 + 4275 \times 5 \\ & = 427500 + 85500 + 21375 \\ & = 534375 \end{aligned}$$

$$\begin{aligned} & \text{(e) } 504 \times 35 \\ & = (500 + 4) \times 35 \\ & = 500 \times 35 + 4 \times 35 \\ & = 17500 + 140 \\ & = 17640 \end{aligned}$$

Question 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:

$$123456 \times 8 + 6 = 987654$$

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$$1234567 \times 8 + 7 = 9876543$$

Pattern works like this:

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

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

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

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

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

$$123456 \times 8 + 6 = 987654$$

$$1234567 \times 8 + 7 = 9876543$$

ACTIVITY- To show different properties of whole numbers.