#### **TEACHING TASK**

#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The correct answer is C) Multiplication using Expanded Form. Explanation: Multiplication using expanded form involves breaking down each number into its constituent parts (such as tens and units) before multiplying.

For example, if you want to multiply 23 by 4, you would break down 23 into 20 and 3. Then you would multiply each part by 4:  $20 \times 4=80$ ,  $3 \times 4=12$ 

Finally, you would add those results together: 80+12=92 This method helps students understand the value of each digit in a number and how they contribute to the final product.

2. To find the result of multiplying 4567 by 3 using expanded form, we break down 4567 into its constituent parts: 4000+500+60+7Now we multiply each part by 3:  $4000\times3=12000$ ,  $500\times3=1500$ ,  $60\times3=180$ ,  $7\times3=21$ 

Now, we add all the results together: 12000+1500+180+21=13,701 So, the correct answer is A) 13,701.

3. The correct answer is B) Column Multiplication.

Explanation: Column multiplication is particularly useful for multiplying larger numbers because it organizes the numbers vertically and allows for a step-by-step calculation. This method helps keep track of place values and makes it easier to add intermediate results without losing clarity.

For example, when multiplying two larger numbers, you can write each number in a separate column, multiply each digit of the bottom number by each digit of the top number, and then add the results together in a systematic way. This organization helps minimize errors and ensures clarity in the process.

4. The correct answer is B) The number being multiplied. Explanation: In a multiplication operation, the term "multiplicand" refers to the number that is being multiplied by another number (the multiplier). For example, in the multiplication expression  $4 \times 5$ , the multiplicand is 4, while 5 is the multiplier. The result of the multiplication is called the "product."

## **ADVANCED LEVEL**

# More than One Answer Type

5. The correct answers are B) Column Multiplication and D) Multiplication Using Lattice Method.

Explanation: Both column multiplication and the lattice method are particularly useful for multiplying larger numbers, as they provide clarity and organization:

Column Multiplication: This method organizes numbers vertically, allowing you to multiply digit by digit while keeping track of place values. It minimizes errors and makes it easy to add intermediate results. Multiplication Using Lattice Method: This method uses a grid to help organize the multiplication process. Each digit is multiplied and placed in the appropriate section of the lattice, making it easy to add the results together while keeping track of carries.

Both methods enhance clarity and organization, making them effective for larger numbers. Basic multiplication and multiplication using expanded form can also be useful but are generally less structured for handling large numbers compared to the other two methods.

6. The steps involved in multiplication using expanded form are:

A) Decompose the number into place value components: Break down the number you are multiplying into its place value parts (e.g., thousands, hundreds, tens, and units).

B) Multiply each component by the single-digit number: Multiply each of the decomposed parts by the other number (usually a single-digit number).

C) Add up the results: Finally, add all the products together to get the final result.

So, the correct answer includes all three steps!

# Fill In the Blanks

7. Multiplication using expanded form decomposes the number into its place value components and then multiplies each component by the \*\*multiplier\*\*.

For example, if you are multiplying 23 by 4, you would break down 23 into 20 and 3, and then multiply each by 4 to find the products.

8. In the lattice method, the grid is filled with the \*\*products\*\* of the digits being multiplied.

Each cell of the grid represents the multiplication of one digit from the first number by one digit from the second number, and the resulting product is placed in that cell, typically split into its tens and units components.

# Matching Type

9. Here's the correct matching of each multiplication method with its description:

1. Column Multiplication --- C) Follows the same principles as basic multiplication but with more digits.

2. Multiplication Using Expanded Form --- B) Breaks down each number into its constituent parts for multiplication.

3. Multiplication Using Lattice Method --- A) Involves setting up a lattice grid and filling it with products.

4. Basic Multiplication --- D) Represents repeated addition.

## **Answer the Following Questions**

10. In the multiplication using expanded form of 4567 by 3, we break down 4567 into its place value components:

4000, 500, 60, 7.

When multiplying 4567 by 3, we focus on the component 60. Here's how we find the product of 3 multiplied by 60:

1. Identify the Component: We have the tens place, which is 60 (from the number 4567).

2. Multiply: We then multiply this component by 3:  $3 \times 60 = 180$ 

3. Understanding the Result: This means that if you have 3 groups of 60, the total is 180.

Thus, the product of 3 multiplied by 60 is 180. This step is part of the overall process when using expanded form, where we multiply each part of the original number separately before summing all the results to get the final product.

11. To multiply 2895 by 6 using column multiplication, follow these

steps: Step 1: Write the numbers in columns 2895 6 х Step 2: Multiply each digit of 2895 by 6, starting from the right  $1.6 \times 5 = 30$ Write down 0 and carry over 3. 2.  $6 \times 9 = 54$ Add the carry: 54+3=57Write down 7 and carry over 5.  $3.6 \times 8 = 48$ Add the carry: 48+5=53Write down 3 and carry over 5. 4.  $6 \times 2 = 12$ Add the carry: 12+5=17Write down 17.

Step 3: Combine the results"Putting all the numbers together, we have: 2895

× 6

17370

#### LEARNERS TASK

#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The correct answer is A) Adding groups of numbers.

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Explanation: Multiplication is essentially a way of expressing repeated addition. For example, multiplying 3 by 4 ( $3\times4$ ) can be thought of as adding 3 together four times (3+3+3+3), which equals 12. Thus, multiplication represents the process of adding equal groups together.

2. The correct answer is B) 12.

Explanation: To multiply 3 by 4 using repeated addition, you add 3 to-

gether four times: 3+3+3+3=12 So, 3×4=12.

3. The correct answer is C) Products of digits.

Explanation: In the lattice method, each cell of the lattice grid is filled with the products of the digits being multiplied. Each digit from one number is multiplied by each digit from the other number, and the resulting product is placed in the corresponding cell of the grid, typically split into tens and units. This helps in organizing the multiplication process and makes it easier to add the results together later.

4. To find the result of multiplying 2345 by 6 using the lattice method, follow these steps:

Step 1: Set Up the Lattice Grid

Create a grid with 4 columns (for the digits in 2345) and 1 row (for the digit 6):

|2|3|4|5|

6 | | | |

Step 2: Fill in the Grid

Multiply each digit of 2345 by 6 and fill in the grid:

 $6 \times 2 = 12$ : Write 1 in the upper part and 2 in the lower part.  $6 \times 3 = 18$ : Write 1 in the upper part and 8 in the lower part.

 $6 \times 4 = 24$ : Write 2 in the upper part and 4 in the lower part.  $6 \times 5 = 30$ : Write 3 in the upper part and 0 in the lower part.

The grid now looks like this:

| 2 | 3 | 4 | 5 |

-----

6 | 1 2 | 1 8 | 2 4 | 3 0 |

Step 3: Add Along the Diagonals

Now, add the numbers along the diagonals starting from the bottom right:

Rightmost diagonal: 0 (from 30) = 0

Next diagonal: 4 (from 24) + 8 (from 18) + 0 = 12 ---- Write down 2 and carry over 1.

Next diagonal: 2 (from 18) + 2 (from 12) + 1 (carried over) = 5

Leftmost diagonal: 1 (from 12) = 1 Step 4: Combine the Results Reading the results from top to bottom gives: 1 (from leftmost diagonal) 5 (next diagonal) 2 (next diagonal) 0 (rightmost diagonal) Thus, the final result is 14,070. Final Answer So the correct answer is B) 14,070.

#### ADVANCED LEVEL

#### More than One Answer Type

5. C) Multiplication using Expanded Form, B) Column Multiplication (to some extent, as it organizes digits based on place value) Explanation:

Multiplication using Expanded Form: This method explicitly involves decomposing each number into its place value components before performing the multiplication.

Column Multiplication: While it primarily organizes the multiplication process, it also requires understanding place values, especially when dealing with multi-digit numbers. Each digit is multiplied separately, reflecting their value, which can be seen as a form of breaking down the numbers.

The Basic Multiplication and Multiplication Using Lattice Method do not primarily focus on breaking numbers down into parts in the same way.

6. The correct answers are A) Multiply each digit separately and B) Perform addition of products.

Steps Involved in Column Multiplication:

1. Multiply Each Digit Separately (A): Start with the rightmost digit of the bottom number and multiply it by each digit of the top number, working from right to left.

2. Write Down the Products: Align the products according to their place value.

3. Perform Addition of Products (B): After multiplying each digit, add all the products together to get the final result.

So, the main steps are multiplying each digit separately and then adding those products.

#### Fill In the Blanks

7. Basic multiplication of  $3 \times 5$  means adding 3 together five times. Explanation: This can be expressed as: 3+3+3+3=15So,  $3 \times 5$  is equivalent to adding 3 a total of 5 times.

8. Multiplying a 4-digit number by a single-digit number involves performing four separate \*multiplications\*.

Explanation: When you multiply a 4-digit number by a single-digit number, you multiply each digit of the 4-digit number by the single-digit number, resulting in four separate multiplication operations (one for each digit). After that, you add any carryovers and sum the results to get the final product.

# **Matching Type**

- 9. Here's the correct matching for each term:
- 1. Multiplicand --- A) The number being multiplied.
- 2. Multiplier --- C) The number doing the multiplication.
- 3. Product --- B) The result of the multiplication.

## **Answer the Following Questions**

10. Expressing the number 4567 in expanded form results in:
4000+500+60+7
Explanation:
4000 is the value of the thousands place (4 in the thousands).
500 is the value of the hundreds place (5 in the hundreds).
60 is the value of the tens place (6 in the tens).
7 is the value of the units place (7 in the ones).
So, the expanded form of 4567 is 4000+500+60+7.

11. To find the product of 58 multiplied by 6 using column multiplication, follow these steps:

Step 1: Write the numbers in columns

58 × 6

Step 2: Multiply each digit of 58 by 6, starting from the right 6 × 8 = 48: Write down 8 and carry over 4.
6 × 5 = 30: Add the carry: 30+4=34. Write down 34.

Step 3: Combine the results

Putting the results together, we get:

58

× 6

\_\_\_\_\_

348

Final Result

Thus, the product of 58 multiplied by 6 is 348.

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#### **TEACHING TASK**

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## **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

## **Multiple Choice Questions**

1. The correct answer is D) Multiplication by Powers of 10. Explanation:

When you multiply 25 by 10, you are effectively shifting the decimal place one position to the right, which is a characteristic of multiplying by powers of 10. This property shows how numbers increase when multiplied by 10, 100, 1000, etc.

While other properties like the associative and commutative properties pertain to the arrangement of numbers in multiplication, this specific example illustrates how multiplication by powers of 10 affects the value.

2. The correct answer is C) Multiplication by Powers of 10.

Explanation: When you multiply a number by a power of 10 (such as 10, 100, 1000, etc.), the digits of that number shift to the left by as many places as there are zeros in the power of 10. For example:  $25 \times 10=250$  (the digits shift left one place),  $25 \times 100=2500$  (the digits shift left two places)

This property demonstrates how multiplying by powers of 10 changes the place value of the digits in the number.

3. The correct answer is A) Associative Property.

Explanation: The associative property of multiplication states that the way in which numbers are grouped in multiplication does not affect the final product. For example, if you have three numbers a, b, and c:  $(a \times b) \times c = a \times (b \times c)$ 

This means you can group the numbers in any way, and the result will be the same.

4. The correct answer is B) Multiplicative Inverse Property.

Explanation: The multiplicative inverse property states that the product of a number and its reciprocal (or multiplicative inverse) is always 1.

For example, if you have a number a (where  $a \neq 0$ ), then:  $a \times \frac{1}{a} = 1$ 

This property highlights the relationship between a number and its reciprocal.

## **ADVANCED LEVEL**

## More than One Answer Type

5. The property of multiplication that ensures changing the order of the numbers being multiplied does not change the result is the A, C Associative Property: The grouping of numbers being multiplied does not change the result.

Identity Property: Multiplying a number by 1 results in the original number.

6. The property of multiplication ensures that the grouping of numbers being multiplied does affect the result is A, B

Zero Property: Multiplying any number by 0 results in 0.

Distributive Property: Multiplication distributes over addition.

# Fill In the Blanks

7. To solve for the missing number in the equation  $3285 \times 14 = x \times 3285$ , we can divide both sides by 3285:

 $x = \frac{3285 \times 14}{3285}$ 

This simplifies to: x=14So, the equation can be completed as:  $3285 \times 14 = 14 \times 3285$ Thus, the missing number is 14.

8.15,10

# **Matching Type**

9. Here's the correct matching of each statement to its corresponding property:

1. The order of the numbers being multiplied does not change the result. ----- B)  $3 \times 4 = 4 \times 3 = 12$ 

2. The grouping of numbers being multiplied does not change the result. ----- D)  $(2 \times 3) \times 4 = 2 \times (3 \times 4) = 24$ 

3. Multiplication distributes over addition. ----- A)  $2 \times (3 + 4) = 2 \times 3 + 2 \times 4 = 14$ 

4. Multiplying a number by 1 results in the original number. ----- C) 5  $\times$  1 = 5

So the matches are: 1 - B, 2 - D, 3 - A, 4 - C.

# **Answer the Following Questions**

10. To fill in the blanks in the expression 579×4=(500+\_\_\_+9)×4=(\_\_\_×\_\_\_)+(\_\_\_×\_\_\_)+(\_\_\_×\_\_\_), we can break down 579 as follows: 1. Break down 579: 579=500+70+9 So, we can fill in the first part: The first blank: 70 This gives us: 579×4=(500+70+9)×4 2. Distributing the multiplication: Using the distributive property, we can express this as:  $(500 \times 4) + (70 \times 4) + (9 \times 4)$ Now we fill in the blanks: For the second part: First blank: 500, Second blank: 4, Third blank: 70, Fourth blank: 4, Fifth blank: 9, Sixth blank: 4 So we get:  $(500 \times 4) + (70 \times 4) + (9 \times 4)$ Putting it all together, we have: 579×4=(500+70+9)×4=(500×4)+(70×4)+(9×4)=? Now calculating: 500×4=2000, 70×4=280, 9×4=36. So: 2000+280+36=2316 Thus, the answer is: 579×4=2316 11. To calculate  $764 \times 9$ :

764×9=6876

So, 764×9=6876.

#### LEARNERS TASK

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## **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The property of multiplication that states that changing the order of the numbers being multiplied does not change the result is the B) Commutative Property.

So, the correct answer is B) Commutative Property.

2. The property of multiplication that allows you to change the expression  $(2\times3)\times4$  to  $2\times(3\times4)$  is the A) Associative Property. So, the correct answer is A) Associative Property.

3. The property that ensures that when you multiply any number by 1, the result is the original number is the C) Identity Property. So, the correct answer is C) Identity Property.

4. The property of multiplication that allows you to distribute it over addition is the C) Distributive Property.

So, the correct answer is C) Distributive Property.

## ADVANCED LEVEL

## More than One Answer Type

5. The property of multiplication that specifically ensures that changing the order of the numbers being multiplied does not change the result is the A) Commutative Property.

The B) Associative Property does not address the order of multiplication but rather how numbers are grouped. The C) Distributive Property relates to distributing multiplication over addition.

Thus, in this context, the only correct answer is A) Commutative Property. If you're looking for properties that involve multiplication more generally, the Associative Property is important, but it does not address changing the order of the numbers. So, the best answer is just A, B.

6. In the context of the question, if we are discussing the scenario where

multiplying a number by its multiplicative inverse results in 1, it is essential to recognize the special case of zero.

B) Multiplicative Inverse Property: This property states that for any nonzero number a, multiplying a by its multiplicative inverse (or reciprocal)

 $\frac{1}{a}$  gives 1. However, this does not hold for zero, as zero does not have a multiplicative inverse

multiplicative inverse.

C) Zero Property: This property states that multiplying any number by zero results in zero. Therefore, if you try to consider zero's multiplicative inverse, it does not exist, and thus the result is not 1.

Given these explanations, the properties that ensure that multiplying any number by its multiplicative inverse does not always yield 1 (especially in the case of zero) would be:

B) Multiplicative Inverse Property (because it specifically excludes zero)C) Zero Property (because it addresses the case of zero)

So, both B and C can be considered correct answers in this context.

#### Fill In the Blanks

7. To make the equation  $826 \times$ \_\_\_=0 true, the blank must be filled with 0. This is based on the Zero Property of Multiplication, which states that any number multiplied by zero equals zero.

So, the complete equation is:  $826 \times 0=0$ 

8. To find the missing number in the equation  $\_\_\times3=180$ , you can divide both sides by 3:

Missing Number =  $\frac{180}{3} = 60$ 

So, the complete equation is:  $60 \times 3 = 180$ 

#### **Matching Type**

9. Here's the correct matching for each expression:
1. 89 × 1 ---- D) 89
2. 36 × 3 ---- A) 108
3. 2 × 11 ---- B) 22
4. 94 × 0 ---- C) 0
So the matches are: 1 - D, 2 - A, 3 - B, 4 - C

# Answer the Following Questions

10. To solve  $134 \times 5$  using the expression you provided, we first break down 134 into its components: 134=100+30+4Now, substituting this into the expression:  $134 \times 5=(100+30+4) \times 5$ Using the distributive property, we can expand this:  $(100+30+4) \times 5=(100 \times 5)+(30 \times 5)+(4 \times 5)$ Now we calculate each part: $100 \times 5=500$ ,  $30 \times 5=150$ ,  $4 \times 5=20$ Now, adding these together: 500+150+20=670So,  $134 \times 5=670$ To summarize, the complete expression can be rewritten as:  $(100+30+4) \times 5=(100 \times 5)+(30 \times 5)+(4 \times 5)=670$ .

11. To calculate 3285×8, we can do it step by step. First, we can multiply 3285 by 8: 3285×8=26280 So, 3285×8=26280.

## Multiplication by a 2-Digit Multiplier (KEY)

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#### **TEACHING TASK**

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#### **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

## **Multiple Choice Questions**

1. In the column method, partial products are added \*\*b) Vertically\*\*. This means that you align the numbers by place value (units, tens, hundreds, etc.) and add them straight down in columns.

2. To find the product of  $5294 \times 43$  using the lattice method, we can break it down as follows:

1. Set up the lattice grid:

Write 5294 on top (split into 5, 2, 9, 4) and 43 on the side (split into 4 and 3).

2. Fill in the lattice: Multiply each digit of 5294 by each digit of 43 and place the results in the corresponding cells of the grid, using the lattice structure:

 $5 \times 4 = 20$  (2 in the tens, 0 in the units)

 $2 \times 4=8$  (0 in the tens, 8 in the units)

 $9 \times 4=36$  (3 in the tens, 6 in the units)

 $4 \times 4 = 16$  (1 in the tens, 6 in the units)  $5 \times 3 = 15$  (1 in the tens, 5 in the units)  $2 \times 3 = 6$  (0 in the tens, 6 in the units)  $9 \times 3 = 27$  (2 in the tens, 7 in the units)

 $4 \times 3 = 12$  (1 in the tens, 2 in the units)

3. Add the partial products diagonally:

Add the numbers in each diagonal from the bottom right to the top left. After calculating and summing all parts, the final result will be 227,642. So the answer is b) 227,642.

3. The method that involves carrying over any tens during multiplication is \*\*b) Column method\*\*. In this method, when the product of digits exceeds 9, you carry over the tens to the next column.

4. In the lattice method, the step that follows filling in the lattice with products is \*\*c) Adding diagonally\*\*. After you've filled in the products, you add the numbers along each diagonal to find the final sum.

#### ADVANCED LEVEL

#### More than One Answer Type

5. The steps in the lattice method include:

1. a) Drawing a lattice or grid - Create a grid based on the number of digits in the multiplicand and multiplier.

2. b) Writing numbers in the grid - Write the multiplicand on top and the multiplier on the side of the grid.

3. c) Multiplying each digit of the multiplier by each digit of the multiplicand - Fill in the grid with the products, placing the tens and units in separate sections of each box.

4. Adding diagonally - After filling in the grid, you add the numbers along each diagonal to find the final result.

So, the correct steps are a), b), and c), with the addition being the next step after multiplying. d) Subtracting the numbers diagonally is not a step in the lattice method.

6. The steps included in the column method are:

1. a) Multiplying each digit of the 4-digit number by the rightmost digit of the 2-digit number --- This is the first multiplication step.

2. c) Adding vertically --- After calculating the products, you align them by place value and add the results vertically.

b) Adding horizontally and d) Adding diagonally are not standard steps in the column method.

So, the correct steps are a and c.

## Fill In the Blanks

7. To calculate 80×6735, you can use the following steps:

1. Multiply 6735 by 80: 80×6735=80×(6000+700+30+5).

2. Distribute 80: =(80×6000)+(80×700)+(80×30)+(80×5)

3. Calculate each term: 80×6000=480000,80×700=56000, 80×30=2400, 80×5=400

Add the results together: 480000+56000+2400+400=538800 So, 80×6735=538800.

8. To calculate 14×7839, we can use the standard multiplication method:

1. Multiply each digit of 7839 by 14: 14×7839

2. Break it down: =14×(7000+800+30+9)

3. Distribute 14:=(14×7000)+(14×800)+(14×30)+(14×9)

4. Calculate each term: 14×7000=98000, 14×800=11200, 14×30=420, 14×9=126

5. Add the results together: 98000+11200+420+126=109746 So, 14×7839=109746.

# **Matching Type**

9. Here's the matching for each item:

1. Drawing a lattice or grid --- D) Drawing a structure for multiplication.

2. Writing numbers in the grid ---- C) Filling in the lattice with product of digits.

3. Multiplying each digit ---- B) Multiplying each digit of the multiplier by each digit of the multiplicand.

4. Adding diagonally ---- A) Adding the numbers diagonally

So the matches are: 1 - D, 2 - C, 3 - B, 4 - A

#### Answer the Following Questions

10. Let's go through the lattice method step-by-step to calculate 7246×673.

Step 1: Set Up the Lattice

1. Draw the grid: Since 7246 has 4 digits and 673 has 3 digits, you will create a 4x3 grid.

2. Label the grid:

Write 7246 along the top, with each digit in a separate column: 7, 2, 4, 6.

Write 673 along the side, with each digit in a separate row: 6, 7, 3.

Step 2: Fill in the Lattice

Now, multiply each digit from the top by each digit from the side and fill in the boxes of the grid:

Row 1 (for 6):

7×6=42 ---- write 4 and 2 2×6=12 ---- write 1 and 2 4×6=24 ---- write 2 and 4 6×6=36 ---- write 3 and 6 Row 2 (for 7): 7×7=49 ---- write 4 and 9 2×7=14 ---- write 1 and 4 4×7=28 ---- write 2 and 8 6×7=42 ---- write 4 and 2 Row 3 (for 3): 7×3=21 ---- write 2 and 1 2×3=6 ---- write 0 and 6 4×3=12 ---- write 1 and 2 6×3=18 ---- write 1 and 8 The filled grid looks like this: 7 2 4 6 ------6 | 42 | 12 | 24 | 36 | \_\_\_\_\_ 7 | 49 | 14 | 28 | 42 | \_\_\_\_\_

3 | 21 | 06 | 12 | 18 |

\_\_\_\_\_

Step 3: Add the Diagonal Values Now, add the numbers along each diagonal: 1. Start from the bottom right to the top left: Rightmost diagonal: 6 Next diagonal: 4+1=5 Next diagonal: 2+2+1=5 Next diagonal: 4+1+0+3=8 Next diagonal: 2+4+2=8 Next diagonal: 4+2=6 Last diagonal: 4 Step 4: Write the Result Putting it all together, you read the sums from top to bottom, carrying over if necessary: Starting from the leftmost diagonal: 4, Then 6, Then 8, Then 8, Then 5, Then 5, Finally 6 So, combining these gives us:  $7246 \times 673 = 4,876,558$ . Thus, the final result is 4,876,558.

11. To calculate 8249×95 using the column method, follow these steps: Step 1: Set Up the Problem

Write the numbers vertically, aligning them by place value: 8249

× 95

Step 2: Multiply by the Rightmost Digit Multiply 8249 by 5 (the rightmost digit of 95): 8249

× 5

\_\_\_\_\_

41245 (This is 8249 × 5)

Step 3: Multiply by the Next Digit

Multiply 8249 by 9 (the next digit of 95). Since 9 is in the tens place, you will add a zero to the right:

8249

× 9

74241 0 (This is  $8249 \times 9$ , shifted one place to the left)

Step 4: Add the Partial Products Now, add the two results together: 41245

+ 742410

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783655

Final Result So, 8249×95=783,655.

# LEARNERS TASK

# **CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)**

#### **Multiple Choice Questions**

1. The methods commonly used to multiply a 4-digit number by a 2-digit multiplier include:

a) Lattice method and b) Column method.

Both methods are effective for this type of multiplication.

If you're looking for the most commonly used method in basic arithmetic, it would generally be the b) Column method.

2. The method that involves adding up the diagonals to get the final result is the \*\*a) Lattice method\*\*. In this method, after filling in the lattice with products, you add the numbers along each diagonal to find the final sum.

3. To find the result of multiplying 2345 by 67, we can calculate it directly: 2345×67
Calculating step-by-step:
1. Multiply 2345 by 7 (the rightmost digit of 67): 2345×7=16415
2. Multiply 2345 by 60 (the next digit of 67, which is 6 in the tens place): 2345×6=14070
Since this is actually 60, we write it as: 14070×10=140700
Add the two products: 16415+140700=157115

Putting it all together,  $2345 \times 67 = 157115$ . So, the answer is b) 1,57,115

4. In the lattice method, the result of multiplication is obtained \*\*c) By adding diagonally\*\*. After filling in the lattice with the products, you add the numbers along each diagonal to get the final result.

#### **ADVANCED LEVEL**

# More than One Answer Type

5. In the column method for multiplying a 4-digit number by a 3-digit multiplier, the following steps are involved:

- a) Adding all partial products horizontally: You can add the results of the multiplications across the rows.

- b) Multiplying each digit of the 4-digit number by each digit of the 3digit multiplier: This is the initial step where you multiply each digit of the multiplicand by each digit of the multiplier.

- c) Adding all partial products vertically: After calculating, you would typically add the partial products vertically, aligning them by place value.

So the correct answers are a, b, and c.

d) Adding all partial products diagonally is not part of the column method.

6. The methods that involve performing multiple multiplications and then adding the results together are:

- a) Column method: You multiply each digit of the multiplicand by each digit of the multiplier, then add the results (partial products).

- b) Lattice method: You multiply each digit of the multiplier by each digit of the multiplicand, fill in the lattice, and then add the diagonal sums to get the final result.

So, the correct answers are a and b.

c) Subtraction method and d) Addition method do not involve multiple multiplications followed by addition.

# Fill In the Blanks

7. To calculate 90×900: 90×900=81,000 So, 90×900=81,000.

8. To calculate 70×8002: 70×8002=560140 So, 70×8002=560,140.

#### **Matching Type**

9. Here's the matching for each item:

1. Used for multiplying large numbers --- A) Involves drawing a lattice or grid (referring to the lattice method)

2. Also known as traditional algorithm --- D) Starts by multiplying each digit of the number by the rightmost digit of the multiplier\*\* (referring to the column method)

3. Organizes products in columns --- B) Involves performing multiple multiplications and additions\*\* (this describes both the column method and the general process)

4. Involves adding all partial products --- C) Involves multiplying each digit of the multiplier by each digit of the multiplicand (this applies generally but aligns with the lattice method as well)

Summary of Matches: 1 - A, 2 - D, 3 - B, 4 - C.

## **Answer the Following Questions**

10. To calculate 389×74 using the column method, follow these steps:
Step 1: Set Up the Problem
Write the numbers vertically, aligning them by place value:
389
× 74

Step 2: Multiply by the Rightmost Digit Multiply 389 by 4 (the rightmost digit of 74): 389×4=1556 Write it down: 389

× 74

1556 (This is 389 × 4)

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Step 3: Multiply by the Next Digit Multiply 389 by 7 (the next digit of 74). Since 7 is in the tens place, add a zero to the right: 389×7=2723 Write it down, shifted one place to the left: 389 × 74 \_\_\_\_\_ 1556 (This is  $389 \times 7$ , shifted one place to the left) 27230Step 4: Add the Partial Products Now, add the two results together: 1556+27230\_\_\_\_\_ 28786 **Final Result** So, 389×74=28,786. 11. To calculate 739×123 using the lattice method, follow these steps: Step 1: Set Up the Lattice 1. Draw a grid: Since 739 has 3 digits and 123 has 3 digits, create a 3x3 grid. 2. Label the grid: Write 739 along the top, with each digit in a separate column: 7, 3, 9. Write 123 along the side, with each digit in a separate row: 1, 2, 3. Step 2: Fill in the Lattice Multiply each digit of 739 by each digit of 123 and fill in the boxes of the lattice: For 1: 7×1=07 ---- write 0 and 7

3×1=03 ---- write 0 and 3 9×1=09 --- write 0 and 9 For 2: 7×2=14 ---- write 1 and 4 3×2=06 ---- write 0 and 6 9×2=18 ---- write 1 and 8 For 3: 7×3=21 ---- write 2 and 1 3×3=09 ---- write 0 and 9 9×3=27 ---- write 2 and 7

Step 3: Fill in the Lattice The filled grid looks like this: 7 3 9

1	 	07	03	09
2	 	14	06	18
3		21	09	27

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Step 4: Add the Diagonal Values

Now, add the numbers along each diagonal from the bottom right to the top left:

Rightmost diagonal: 9

Next diagonal: 8+0=8 Next diagonal: 6+1+0=7 Next diagonal: 4+2+0=6 Next diagonal: 1+0+2=3 Leftmost diagonal: 0

Step 5: Write the Result Putting it all together, you read the sums from top to bottom (remember to carry if necessary): Starting from the leftmost diagonal: 0 Then 3 Then 6 Then 7 Then 8 Finally 9 So, the final result is: 739×123=90897 Thus, the product is 90897.