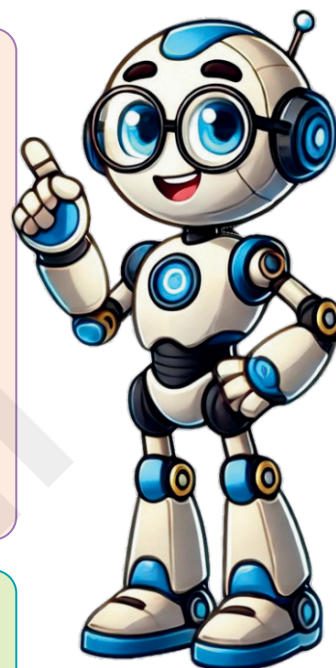


We'll cover the following key points:

- Basic Properties of Multiplication
- Multiplication of 3-digit number by a 2-digit number
- Multiplication of 3-digit number by a 3-digit number
- Multiplication of 4-digit number by a 1-digit number
- Multiplication of 4-digit number by a 2-digit number
- Multiplication of 4-digit number by a 3-digit number
- Continued Product (Multiplication)
- Simplification
- Word Problems Based on Multiplication



Hi, I'm EeeBee

Do you Remember fundamental concept in previous class:

In class 3rd we learnt

- Multiplication Tables upto 20
- Multiplication by 1 and 2-Digit Number
- Multiplication By 10, 20, 100,....., 90
- Problems on Multiplication



Still curious?
Talk to me by
scanning
the QR code.

Learning Outcomes

By the end of this chapter, students will be able to:

- Multiply two numbers with up to 4 digits (e.g., 23×15).
- Understand and use the multiplication tables up to 12 (e.g., $5 \times 6 = 30$).
- Use the distributive property of multiplication (e.g., $23 \times 5 = (20 \times 5) + (3 \times 5)$).
- Multiply numbers using column multiplication (e.g., 24×36).
- Solve word problems involving multiplication (e.g., finding the total cost of multiple items).
- Multiply a 2-digit number by a 2-digit number (e.g., 34×45).
- Understand the concept of multiplying by 10, 100, and 1,000 (e.g., $23 \times 10 = 230$).
- Check multiplication answers by using division (inverse operation).



Warm Up

Experiential Learning



START

$17 \times 5 = \underline{\quad}$

$1 \times 4 = \underline{\quad}$

$4 \times 3 = \underline{\quad}$

$15 \times 6 = \underline{\quad}$

$2 \times 9 = \underline{\quad}$

$5 \times 55 = \underline{\quad}$

$21 \times 8 = \underline{\quad}$

$33 \times 3 = \underline{\quad}$

$1 \times 19 = \underline{\quad}$

$10 \times 6 = \underline{\quad}$

$2 \times 11 = \underline{\quad}$

$35 \times 2 = \underline{\quad}$

$16 \times 4 = \underline{\quad}$

$5 \times 2 = \underline{\quad}$

$7 \times 9 = \underline{\quad}$

$5 \times 9 = \underline{\quad}$

$22 \times 9 = \underline{\quad}$

$5 \times 11 = \underline{\quad}$

$3 \times 10 = \underline{\quad}$

$35 \times 4 = \underline{\quad}$

$17 \times 5 = \underline{\quad}$

$9 \times 2 = \underline{\quad}$

$51 \times 5 = \underline{\quad}$

$13 \times 2 = \underline{\quad}$

$19 \times 2 = \underline{\quad}$

$17 \times 7 = \underline{\quad}$

$11 \times 5 = \underline{\quad}$

$3 \times 5 = \underline{\quad}$

$9 \times 9 = \underline{\quad}$

$14 \times 4 = \underline{\quad}$

FINISH



Basic Properties of Multiplication

Let us now briefly revise and learn the properties of multiplication which we have learnt in the previous class.

1. The product of two numbers does not change even if we change the order of the numbers.

For Example:

(a) $7 \times 8 = 56$ and $8 \times 7 = 56$

Therefore $7 \times 8 = 8 \times 7$

(b) $9 \times 5 = 45$ and $5 \times 9 = 45$

Therefore, $9 \times 5 = 5 \times 9$

2. The product of three numbers does not change even if we change the groupings of the numbers.

(a) $5 \times (4 \times 6) = 120$ and $(5 \times 4) \times 6 = 120$

Therefore, $5 \times (4 \times 6) = (5 \times 4) \times 6$

(b) $(7 \times 8) \times 5 = 56 \times 5 = 280$

$(8 \times 5) \times 7 = 40 \times 7 = 280$

Therefore, $(7 \times 8) \times 5 = (8 \times 5) \times 7$.

This property is also known as associative property of multiplication.

3. The product of any number and 1 is the number itself.

For Example :

(a) $8 \times 1 = 1 \times 8 = 8$

(b) $75 \times 1 = 1 \times 75 = 75$

(c) $9267 \times 1 = 1 \times 9267 = 9267$

This is known as unitary property of multiplication.

4. When a number is multiplied by 0, the product is 0.

For Example :

(a) $9 \times 0 = 0 \times 9 = 0$

(b) $89 \times 0 = 0 \times 89 = 0$

(c) $5679 \times 0 = 0 \times 5679 = 0$

This is known as zero property of multiplication.

Multiplication by 10, 100, 1000 etc.

In order to multiply a number by 10, we write the number and 0 to the right side of the number. Similarly, we add 00 to the right side of the number while multiplying a number by 100. In the same way, we can multiply a number by any multiple of 10.

For Example :

(a) $653 \times 10 = 6530$

(b) $833 \times 100 = 83300$

(c) $9485 \times 1000 = 9485000$

Multiplication by 20, 30, 40, 50 etc.

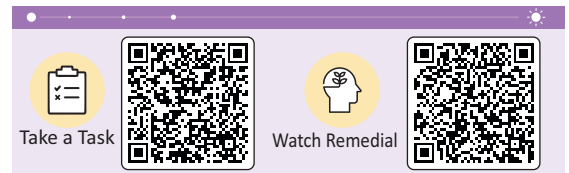
To multiply a number by 20, 30, 40, 50 etc., we multiply the number by 2, 3, 4, 5 etc. and add a zero (0) to the right side of the product.

For example :

(a) $375 \times 20 = 375 \times 2 \times 10 = 7500$

(b) $635 \times 30 = 635 \times 3 \times 10 = 1905 \times 10 = 19050$

(c) $289 \times 40 = 289 \times 4 \times 10 = 11560$



Multiplication by 200, 300, 400, 500 etc.

In the same way to multiply a number by 200, 300, 400, 500 etc., we multiply the number by 2, 3, 4, 5 etc. and add two zero (00) to the right side of the product.

For Example :

$$(a) \quad 214 \times 200 = 214 \times 2 \times 100 = 42800$$

$$(b) \quad 234 \times 300 = 234 \times 3 \times 100 = 70200$$

Similarly we can multiply a number by 2000, 3000, 4000 and so on.

Example 1 : Multiply 19 and 26 by 3000

$$\text{Solution :} \quad 19 \times 3000 = (19 \times 3) \times 1000 = 57 \times 1000 = 57000$$

$$26 \times 3000 = (26 \times 3) \times 1000 = 78 \times 1000 = 78000$$

Multiplication of 3-digit number by a 2-digit number

Example 2 : Multiply 232 by 32.

Solution : Arranging the numbers for multiplication.

$$\begin{array}{r} 232 \leftarrow \text{Multiplicand} \\ \times 32 \leftarrow \text{Multiplier} \\ \hline \end{array}$$

$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 464 \leftarrow (\text{Product of } 232 \times 2) \\ + 6960 \leftarrow (\text{Product of } 232 \times 30) \\ \hline 7424 \leftarrow (\text{Sum of the product}) \end{array} \quad = \quad \begin{array}{r} \textcircled{1} \textcircled{1} \\ 464 \\ + 6960 \\ \hline 7424 \end{array}$$

Therefore, $232 \times 32 = 7424$.

Example 3 : Multiply 246 by 34.

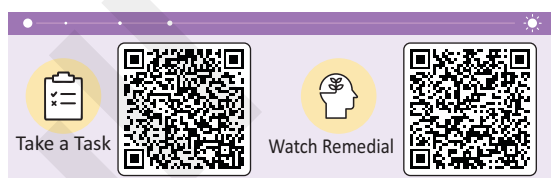
Solution : Arranging the numbers for multiplication.

$$\begin{array}{r} 246 \\ \times 34 \\ \hline \end{array}$$
$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 984 \leftarrow (246 \times 4) \\ + 7380 \leftarrow (246 \times 30) \\ \hline 8364 \leftarrow (246 \times 34) \end{array} \quad \text{Thus, the product of 246 and 34 is 8364.}$$

Example 4 : Multiply 276 by 36.

Solution : Arranging the numbers for multiplication.

$$\begin{array}{r} 276 \\ \times 36 \\ \hline \end{array}$$
$$\begin{array}{r} \textcircled{1} \textcircled{1} \\ 1656 \leftarrow (276 \times 6) \\ + 8280 \leftarrow (276 \times 30) \\ \hline 9936 \leftarrow (276 \times 36) \end{array} \quad \text{Thus, the product of 276 and 36 is 9936.}$$



Multiplication of 3-digit number by a 3-digit number

Example 5 : Find the product of 416 and 239.

Solution : Arranging the numbers for multiplication.

$$\begin{array}{r}
 416 \\
 \times 239 \\
 \hline
 \begin{array}{r}
 \textcircled{1} \textcircled{1} \\
 3744 \leftarrow (416 \times 9) \\
 12480 \leftarrow (416 \times 30) \\
 + 83200 \leftarrow (416 \times 200) \\
 \hline
 99424 \leftarrow (\text{Sum of the product})
 \end{array}
 \end{array}
 =
 \begin{array}{r}
 \textcircled{1} \textcircled{1} \\
 3744 \\
 12480 \\
 + 83200 \\
 \hline
 99424
 \end{array}$$

Therefore, $416 \times 239 = 99424$.

Example 6 : Multiply 225 by 120.

Solution : Arranging the numbers for multiplication.

$$\begin{array}{r}
 225 \\
 120 \\
 \hline
 000 \leftarrow (225 \times 0) \\
 4500 \leftarrow (225 \times 20) \\
 + 22500 \leftarrow (225 \times 100) \\
 \hline
 27000 \leftarrow (225 \times 120)
 \end{array}$$

Thus, the product of 225 and 120 is 27000.



Exercise 4.1

Knowledge Application

1. Find the products of the following :

(a) 7×300

(b) 18×3000

(c) 12×4000

(d) 5×6000

(e) 6×2000

(f) 23×5000

(g) 52×300

(h) 28×500

2. Fill in the blanks :

(a) $33 \times 6000 = \underline{\hspace{2cm}}$

(b) $15 \times 9000 = \underline{\hspace{2cm}}$

(c) $17 \times 500 = \underline{\hspace{2cm}}$

(d) $13 \times 300 = \underline{\hspace{2cm}}$

3. Multiply the following :

(a) 318×88

(b) 257×312

(c) 879×44

(d) 643×225

(e) 188×18

(f) 895×254

(g) 645×364

(h) 735×42

4. Match the columns :

Column A	Column B
(a) $457 \times 24 =$	(i) 39676
(b) $99 \times 87 =$	(ii) 18081
(c) $665 \times 39 =$	(iii) 10968
(d) $287 \times 63 =$	(iv) 8613
(e) $763 \times 52 =$	(v) 25935



Mental Math

Conceptual Understanding

Write the product without actually multiplying.

$348 \times 10 =$	_____	$393 \times 20 =$	_____
$348 \times 100 =$	_____	$393 \times 200 =$	_____
$348 \times 1000 =$	_____	$393 \times 2000 =$	_____

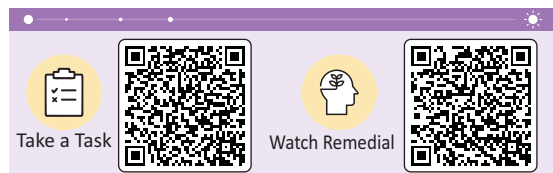
Multiplication of 4-digit number by a 1-digit number

Example 7 : Multiply 4752 by 6.

Solution :

Th	H	T	O
4	7	5	2
$\times 6$			
<hr/>			
2	8	5	12

(Product of $4752 \times 6 = 28512$)



Multiplication of 4-digit number by a 2-digit number

Example 8 : Multiply 6539 by 74.

Solution :

Th	H	T	O
6	5	3	9
$\times 74$			
<hr/>			
2	6	1	56
$+ 457730$			
<hr/>			
4	8	3	886

(6539×4)	$=$	26156
(6539×70)	$=$	+ 457730
(Sum of Product)	$=$	483886

Multiplication of 4-digit number by a 3-digit number

Example 9 : Multiply 3248 by 131.

Solution :

	Th	H	T	O		
3	2	4	8			
×	1	3	1			
<hr/>						
①	①	①				
3	2	4	8		(1 × 3248 = 3 2 4 8)	
9	7	4	4	0	(30 × 3248 = 9 7 4 4 0)	
+	3	2	4	8	0 0	(100 × 3248 = + 3 2 4 8 0 0)
<hr/>						
4	2	5	4	8	8	(Sum of Product = 4 2 5 4 8 8)
<hr/>						

Example 10 : Find the product of 348 and 324.

Solution :

	H	T	O		
3	4	8			
×	3	2	4		
<hr/>					
1	3	9	2	← (348 × 4)	
6	9	6	0	← (348 × 20)	
+	1	0	4	4 0 0	← (348 × 300)
<hr/>					
1	1	2	7	5 2	← (348 × 324)
<hr/>					

Thus, the product of 348 and 324 is 112752.

Example 11 : Multiply 4236 by 346.

Solution :

	Th	H	T	O		
4	2	3	6			
×	3	4	6			
<hr/>						
①	①	①				
2	5	4	1	6	← (6 × 4236 = 2 5 4 1 6)	
1	6	9	4	4	0	← (40 × 4236 = 1 6 9 4 4 0)
1	2	7	0	8	0 0	← (300 × 4236 = 1 2 7 0 8 0 0)
<hr/>						
1	4	6	5	6	5 6	← (Sum of Product = 1 4 6 5 6 5 6)
<hr/>						

Therefore, $4236 \times 346 = 1465656$.

Example 12 : Multiply 1248 by 153.

Solution :

	Th	H	T	O		
1	2	4	8			
×	1	5	3			
	3	7	4	4	← (1248 × 3)	
	6	2	4	0	0 ← (1248 × 50)	
+	1	2	4	8	0	0 ← (1248 × 100)
	1	9	0	9	4	4 ← (1248 × 153)

Thus, $1248 \times 153 = 190944$



Exercise 4.2

Knowledge Application

1. Multiply the following :

- | | | | |
|---------------------|---------------------|---------------------|---------------------|
| (a) 4632×5 | (b) 3585×3 | (c) 9238×8 | (d) 3567×4 |
| (e) 9238×6 | (f) 8753×7 | (g) 6574×2 | (h) 7974×9 |

2. Multiply the following :

- | | | | |
|----------------------|----------------------|----------------------|----------------------|
| (a) 2857×23 | (b) 7654×72 | (c) 9298×17 | (d) 2086×38 |
| (e) 4567×23 | (f) 8573×92 | (g) 7854×87 | (h) 6793×54 |

3. Multiply the following :

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| (a) 7658×129 | (b) 2206×287 | (c) 9672×256 | (d) 9785×388 |
| (e) 4593×429 | (f) 3428×336 | (g) 8793×527 | (h) 9723×629 |

4. Match the Columns :

- | Column A | Column B |
|-------------------------|--------------|
| (a) $9876 \times 27 =$ | (i) 2322250 |
| (b) $3529 \times 145 =$ | (ii) 596490 |
| (c) $885 \times 674 =$ | (iii) 780825 |
| (d) $8975 \times 87 =$ | (iv) 266652 |
| (e) $2654 \times 875 =$ | (v) 511705 |

Continued Product (Multiplication)

Example 13 : Find $184 \times 12 \times 4$.

Solution :

	H	T	O
184	1	8	4
$\times 12$			
<hr/>			
	1	1	
	3	6	8
+ 1840			
<hr/>			
	2	2	08

The product is 2208.

Multiply the product 2208 by the third number 4.

2208
$\times 4$
<hr/>
8832

$$\therefore 184 \times 12 \times 4 = 8832.$$

Example 14 : Find the continued product of 275, 52, 62, 6.

Solution :

	H	T	O
275	2	7	5
$\times 52$			
<hr/>			
	1	1	
	5	5	0
+ 13750			
<hr/>			
	1	4	300

$\therefore 275 \times 52 \times 62 \times 6 = 5319600$

Simplification

Can you do the following sum?

Example 15 : Simplify $80 - 7 \times 2 + 4 \times 3 + 6 = 35$.

Solution : You have done sums involving both addition and subtraction. In the sum given above, you have to do multiplication as well. For proceeding ahead, you need to follow some steps in the following order :

Step 1: First do the multiplication and write the product.
The sum is now simplified into one involving only addition and subtraction.



Step 2: Separate all the numbers with '+' sign in front and all the numbers with '-' sign in front. The first number in the sum does not have a sign. It is considered to have the '+' sign.

Step 3: Add all the numbers with '+' signs. Add all the numbers with '-' signs.

Step 4: Now, you have two numbers. Subtract to get the simplified number.

$$\begin{aligned}
 &= 80 - 14 + 12 + 6 - 35 && \text{(Step 1 – after doing multiplication)} \\
 &= 80 + 12 + 6 - 14 - 35 && \text{(Step 2 – after separating numbers with '+' and '-' signs)} \\
 &= 98 - 49 && \text{(Step 3 – Adding numbers with '+' signs, adding number with '-' signs)} \\
 &= 49 : \text{Answer}
 \end{aligned}$$

Example 16 : Simplify $39 \times 5 - 8 \times 7 + 2 \times 125 - 11 \times 88 + 123 \times 5$

Solution :

$$\begin{aligned}
 &39 \times 5 - 8 \times 7 + 2 \times 125 - 11 \times 88 + 123 \times 5 \\
 &= 195 - 56 + 250 - 968 + 615 \\
 &= 195 + 250 + 615 - 56 - 968 \\
 &= 1060 - 1024 = 36
 \end{aligned}$$

Word Problems Based on Multiplication

Example 17 : The cost of a chair is ₹880. Find the cost of such 76 chairs?

Solution :

$$\begin{aligned}
 \text{Cost of a chair} &= ₹880 \\
 \text{Cost of the such 76 chairs} &= ₹880 \times 76 \\
 &= ₹66880
 \end{aligned}$$



Hence, the cost of 76 chairs is ₹66880.

Example 18 : Sanjeev saves ₹1438 every month. How much will he save in 4 years?

Solution :

$$\begin{aligned}
 \text{Sanjeev saves every month} &= ₹1438 \\
 \text{His savings in 4 years} &= 4 \times 12 = 48 \text{ months} \\
 &= ₹1438 \times 48
 \end{aligned}$$

Therefore, Sanjeev will save in 4 years =

Answer : ₹69024

$$\begin{array}{r}
 880 \\
 \times 76 \\
 \hline
 5280 \\
 + 61600 \\
 \hline
 66880
 \end{array}$$

Th H T O

$$\begin{array}{r}
 1438 \\
 \times 48 \\
 \hline
 \end{array}$$

①

$$\begin{array}{r}
 11504 \\
 + 57520 \\
 \hline
 69024
 \end{array}$$

REMEMBER



BODMAS rule is used to simplify a sum. We use the following operations in order :

- ❖ First we use **B** that stands for Bracket.
- ❖ Then, we use **O** that stands for 'Of'.
- ❖ Then, we use **D** that stands for Division.
- ❖ Then **M**, that stands for Multiplication.
- ❖ Then **A**, that stands for Addition.
- ❖ Finally **S**, that stands for Subtraction.



Exercise 4.3

Knowledge Application

1. Find the continued product of the following :

(a) $125 \times 42 \times 6$

(b) $387 \times 28 \times 10$

(c) $223 \times 25 \times 35 \times 5$

(d) $300 \times 64 \times 9 \times 2$

2. Simplify the following :

(a) $969 - 16 \times 5 - 9 \times 2 - 15 \times 2$

(b) $19 \times 8 - 5 \times 9 - 4 \times 2$

(c) $853 \times 5 - 11 \times 7 + 5 \times 4$

(d) $18 \times 5 + 20 \times 5 - 20 \times 2$

3. The capacity of a water tank is 375 litres. Find the capacity of 45 such tanks.

4. There are 325 sticks in a bundle. How many sticks are there in 156 such bundles?

5. A Banarasi saree costs ₹4335. Find the cost of 15 such sarees.

6. There are 3264 students in a school. If every student contributes ₹144 to a charity, then how much amount gets collected?



Think Tank



Gap Analyzer™



1. Tick (✓) the correct answer.

(a) Even though the numbers are multiplied in any order, the product remains the _____.

(i) different

☐

(ii) same

☐

(iii) average

☐

(iv) greater

☐

(b) When a number is multiplied by 0, the product is _____.

(i) 1

☐

(ii) 0

☐

(iii) 2

☐

(iv) 3

☐

(c) 19345 is the product of _____.

(i) 465×13

(ii) 365×53

(iii) 88×123

(iv) 347×53

(d) The continued product of $321 \times 88 \times 19$ is _____.



(i) 526712



(ii) 536712



(iii) 536721



(iv) 537621



2. Fill in the blanks. One has been done for you.

(a) 356  35600  3560000

(b) 37  

(c) 202  

(d) 999  

(e) 1667  

3. Find the product of the following :

(a) 23×2000

(b) 29×3000

(c) 88×4000

(d) 11×7000

4. Solve the following :

(a) 129×218

(b) 944×43

(c) 428×47

(d) 119×63

5. Find the continued product :

(a) $445 \times 10 \times 3 \times 2$

(b) $288 \times 13 \times 2 \times 5$

(c) $201 \times 60 \times 7$

(d) $123 \times 13 \times 5$

6. Simplify the following :

(a) $19 \times 7 - 6 \times 4 + 5 \times 3$

(b) $223 + 32 \times 44 - 2 \times 0 + 5 \times 14$

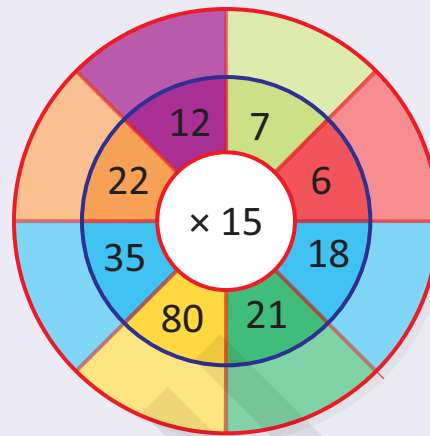
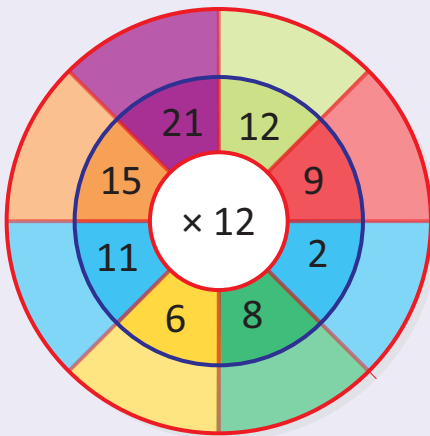
7. If 132 cricket balls can be packed in one carton. In one day, 1675 cartons are packed in a factory. How many balls are packed in the factory in all, on that day?

8. A bag contains 24 kg 500g sugar. How much sugar do such 224 bags have?





Multiply the inner numbers together to get the outer numbers.



Mental Math

Critical Thinking

- How many minutes are there in the month of September?
- Multiply the largest 4-digit number by the largest 3-digit number.
- Multiply the largest 5-digit number by the smallest 2-digit number.



Fun Time Activity

Conceptual Learning

Complete the multiplication grid. One has been done for you.



X	1	2	3	4	5	6	7	8	9	10
1										
2										
3		6				18				
4									36	
5										
6										
7										
8	8		24							
9										
10										



Maths Lab Activity

Collaboration

Objective : To determine the age (in years) and the month and date of birth of students.

Materials Required: pencil, paper.

Procedure: Teacher divides the class into groups of two. Teacher tells students to determine the age, month and date on which his/her partner was born.

What to do?

1. Student asks his/her partner to follow instructions.
 - (i) Add 1 to the number of the month in which you were born.
 - (ii) Multiply it by 100.
 - (iii) Add the date on which you were born.
 - (iv) Multiply it by 2.
 - (v) Add 11 to it.
 - (vi) Multiply by 5.
 - (vii) Add 50 to it.
 - (viii) Multiply by 10.
 - (ix) Add your present age to it.
 - (x) Add 61 to it.
 - (xi) Subtract 11111 from it.
2. Ask the number obtained by his/her partner.
3. The last two digit from the right give the age, the next two digits give the date and the remaining digits give the number of month.



Critical Thinking

Manya and Riya take turns for multiplying numbers by 4 everytime. First Manya chooses the number 4. Riya multiply it by 4 to get 16.

Manya multiplies that by 4 to get 64. Riya multiplies that by 4 to get 256. After going back and forth several times one of them gets the number 1048576. Who get the number Manya or Riya? _____.