

Unit Digit Questions

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MCQ Question 1

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Find the unit digit of $(432)^{412} \times (499)^{431}$.

1. 2

2. 4

3. 6

4. 8

Answer (Detailed Solution Below)

Option 2 : 4

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Unit Digit MCQ Question 1 Detailed Solution

Given:

$$(432)^{412} \times (499)^{431}$$

Concept:

$9^{\text{even no.}} = \text{unit digit } 1$

$9^{\text{odd no.}} = \text{unit digit } 9$

Calculation:

$$(432)^{412} \times (499)^{431}$$

Taking unit digits

$$\Rightarrow 2^{412} \times 9^{431}$$

As we know unit digit of $2^1 = 2$, $2^2 = 4$, $2^3 = 8$, $2^4 = 6$

$$\Rightarrow 2^{4(103)} \times 9^{431}$$

$$\Rightarrow 6 \times 9$$

$$\Rightarrow 54$$

\therefore The unit digit of $(432)^{412} \times (499)^{431}$ is 4.



Additional Information

To determine the last digit of the number 432^{412} , we need to focus on the last digit of base 432 i.e. 2 and the exponential part 412.

We know,

Power of 2	Last digit
2^1	2
2^2	4
2^3	8
2^4	6
2^5	2
2^6	4
2^7	8
2^8	6
2^9	2



Notice the pattern of the last digit. It is 2, 4, 8, 6, 2, 4, 8, 6, 2 so on.

Thus the last digit is repetitive and is a four-digit long i.e. 2, 4, 8, 6. If we keep on writing this table till the power of 2 reaches 412 then how many times this pattern repeated can be found by dividing 412 by 4.

412 divided by 4 is 103 with remainder 0 which indicates that the pattern gets fully repeated 103 times and then ends up with the digit i.e. 6. (if it is fully divisible we take power as 4)

\therefore The Last digit of the number 432^{412} is 6.

$9^{\text{even no.}} = \text{unit digit } 1$

$9^{\text{odd no.}} = \text{unit digit } 9$

\therefore The Last digit of the number 9^{431} is 9

\therefore The unit digit of $(432)^{412} \times (499)^{431}$ is 4.

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MCQ Question 2

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If $x = (164)^{169} + (333)^{337} - (727)^{726}$, then what is the units digit of x ?

1. 5

2. 9

3. 7

4. 8

Answer (Detailed Solution Below)

Option 4 : 8

Unit Digit MCQ Question 2 Detailed Solution

Unit digit of $(164)^{169} + (333)^{337} - (727)^{726}$

To check unit place divide power by 4

$$4^{169} + 3^{337} - 7^{726}$$

$$\Rightarrow 69/4 = \text{Reminder } 1$$

$$\Rightarrow 37/4 = \text{Reminder } 1$$

$$\Rightarrow 26/4 = \text{Reminder } 2$$

$$\Rightarrow 4^1 + 3^1 - 7^2$$

$$\Rightarrow 4 + 3 - 9$$

$$\Rightarrow 7 - 9$$

or, $17 - 9$

$\Rightarrow 8$

So, the unit digit of number x is 8.

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MCQ Question 3

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The digit in the unit's place of the number represented by $(7^{95} - 3^{58})$ is:

1. 6

2. 7

3. 0

4. 4

Answer (Detailed Solution Below)

Option 4 : 4

Unit Digit MCQ Question 3 Detailed Solution

Given:

$$(7^{95} - 3^{58})$$

Concept used:

Cyclicity of 7 is 4

Cyclicity of 3 is 4

Calculation:

$$7^{95} = 7^{(4 \times 23) + 3} = 1 \times 7^3 = 343$$

$$\Rightarrow \text{Unit digit of } 7^{95} = 3$$

$$3^{58} = 3^{(4 \times 14) + 2} = 1 \times 3^2 = 9$$

$$\Rightarrow \text{Unit digit of } 3^{58} = 9$$

$$\text{Unit digit of } (7^{95} - 3^{58}) = 3 - 9 = -6 \text{ or } 10 - 6 = 4$$

\therefore Unit place will be 4

Note: $3 - 9 = -6$ because we have to find the unit digit. whenever the result is negative add 10 in it.

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MCQ Question 4

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If $N = 7^{95} - 3^{58}$, then the digit at the unit place of N is

1. 3

2. 4

3. 6

4. 7

Answer (Detailed Solution Below)

Option 2 : 4

Unit Digit MCQ Question 4 Detailed Solution

Calculation:

The unit place of $7^1 = 7, 7^2 = 9, 7^3 = 3, 7^4 = 1$

The unit place of $7^{95} = 7^{23 \times 4} \times 7^3 = 3$

The unit place of $3^1 = 3, 3^2 = 9, 3^3 = 7, 3^4 = 1$

The unit place of $3^{58} = 3^{14 \times 4} \times 3^2 = 9$

The unit of 7^{95} is 3, which is less than 9

Then take 3 has 13 (by carry rule)

The unit place of $N = 7^{95} - 3^{58} = 13 - 9 = 4$


\therefore The unit digit of N is 4


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MCQ Question 5

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The unit digit of $[(25^{43} \times 56^{42}) + 456^{25} + 23^{42} + 76^{23}]$ is -

1. 1

2. 2

3. 3

4. 4

Answer (Detailed Solution Below)

Option 1 : 1

Unit Digit MCQ Question 5 Detailed Solution

The unit digit of 25^{43} is 5.

The unit digit of 56^{42} is 6.

The unit digit of 456^{25} is 6.

The unit digit of 23^{42} is 9.

The unit digit of 76^{23} is 6.

\therefore The resultant value of the unit digits = $[(5 \times 6) + 6 + 9 + 6] = (30 + 6 + 9 + 6) = 51$

So, the unit digit of the expression is 1.

★ Important Points

23^{42} : Here, we need to know that the unit place of powers of 3 repeats after every 4th power.

So, we divide the power with 4 and check the value of the remainder.

$42/4 \rightarrow 2$ (remainder)

So, the unit digit will be $3^2 = 9$.

The unit digits of other numbers end with 5 and 6, the unit digit of the power of which are the number itself throughout.

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MCQ Question 6

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What is the unit digit of the sum of first 150 whole numbers?

1. 9

2. 5

3. 0

4. 1

Answer (Detailed Solution Below)

Option 2 : 5

Unit Digit MCQ Question 6 Detailed Solution

Formula used:

Sum of N numbers starting from 1 = $N(N + 1)/2$

Calculations:

Whole numbers = 0, 1, 2, 3..... n

So the value of N will be 149.

Sum = $(149 \times 150)/2 = 149 \times 75 = 11175$

\therefore The unit digit is 5.

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MCQ Question 7

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Find the unit digit of $83 \times 87 \times 93 \times 59 \times 61$.

1. 9

2. 4

3. 7

4. 3

Answer (Detailed Solution Below)

Option 3 : 7

Unit Digit MCQ Question 7 Detailed Solution

Given:

$$83 \times 87 \times 93 \times 59 \times 61$$

Calculation:

$$83 \times 87 \times 93 \times 59 \times 61$$

Taking unit digits

$$\Rightarrow 3 \times 7 \times 3 \times 9 \times 1$$

$$\Rightarrow 21 \times 27$$

Again taking unit digits

$$\Rightarrow 1 \times 7$$

$$\Rightarrow 7$$


\therefore The unit digit of $83 \times 87 \times 93 \times 59 \times 61$ is 7.


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MCQ Question 8

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Find the digit at unit place in the product ($742 \times 437 \times 543 \times 679$)

1. 2

2. 4

3. 6

4. 8

Answer (Detailed Solution Below)

Option 4 : 8

Unit Digit MCQ Question 8 Detailed Solution

Given:

$$N = 742 \times 437 \times 543 \times 679$$

Where N is the product of the number.

Calculation:

$$N = 742 \times 437 \times 543 \times 679$$

The unit digit of N is the unit digit of the product of the unit digits of the above numbers present in the multiplication.

$$\Rightarrow 2 \times 7 \times 3 \times 9$$

$$\Rightarrow 14 \times 27$$

$$\Rightarrow 4 \times 7$$

$$\Rightarrow 28$$

$$\Rightarrow 8$$

\therefore The unit digit of the given number N is 8.

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**MCQ Question 9**[View this Question Online >](#)

The digit in the unit's place in the number obtained after calculating $3^{53} - 6^{38} + 27^{56}$ is:

1. 4

2. 2

3. 8

4. 6

Answer (Detailed Solution Below)

Option 3 : 8

Unit Digit MCQ Question 9 Detailed Solution**Concept:**

The unit digit of power of a number repeats itself every 4th time.

Calculation:

$$3^{53} - 6^{38} + 27^{56}$$

$$\Rightarrow (3)^{(13 \times 4) + 1} - (6)^{(9 \times 4) + 2} + (27)^{(14 \times 4)}$$

$$\Rightarrow \text{Unit digit will be determined by unit digit of } (3^1 - 6^2 + 27^4)$$

$$\Rightarrow \text{Unit digit of } 3^1 = 3$$

$$\Rightarrow \text{Unit digit of } 6^2 = 6$$

$$\Rightarrow \text{Unit digit of } 27^4 = 1$$

$$\text{Hence, unit digit will be } (3 - 6 + 1) = -2$$

Since unit digit can not be negative, we will add 10 to it because these numbers are in decimal form.

$$\therefore \text{Unit digit of } (3)^{53} - (6)^{38} + (27)^{56} = -2 + 10 = 8$$

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MCQ Question 10

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Find the number of the digits in the expression $2^{274} \times 25^{137}$

1. 275

2. 274

3. 276

4. 277

Answer (Detailed Solution Below)

Option 1 : 275

Unit Digit MCQ Question 10 Detailed Solution

Concept used:

$$10^0 = 1 \quad 1 \text{ digit}$$

$$10^1 = 10 \quad 2 \text{ digit}$$

$$10^2 = 100 \quad 3 \text{ digit}$$

$$10^n = \quad (n + 1) \text{ digit}$$

Calculation:

$$2^{274} \times 25^{137}$$

$$\Rightarrow 2^{274} \times (5^2)^{137}$$

$$\Rightarrow 2^{274} \times 5^{274}$$

$$\Rightarrow 2^{274} \times 5$$

$$\Rightarrow (10)^{274}$$

$$\Rightarrow \text{Number of digits} = (274 + 1) \text{ digit}$$

$$\Rightarrow 275 \text{ digit}$$

\therefore The required answer is 275 digit