

Foundation Batch

MATHS

Classification of Numbers
Unit Digit (इकाई का अंक)

Class-02

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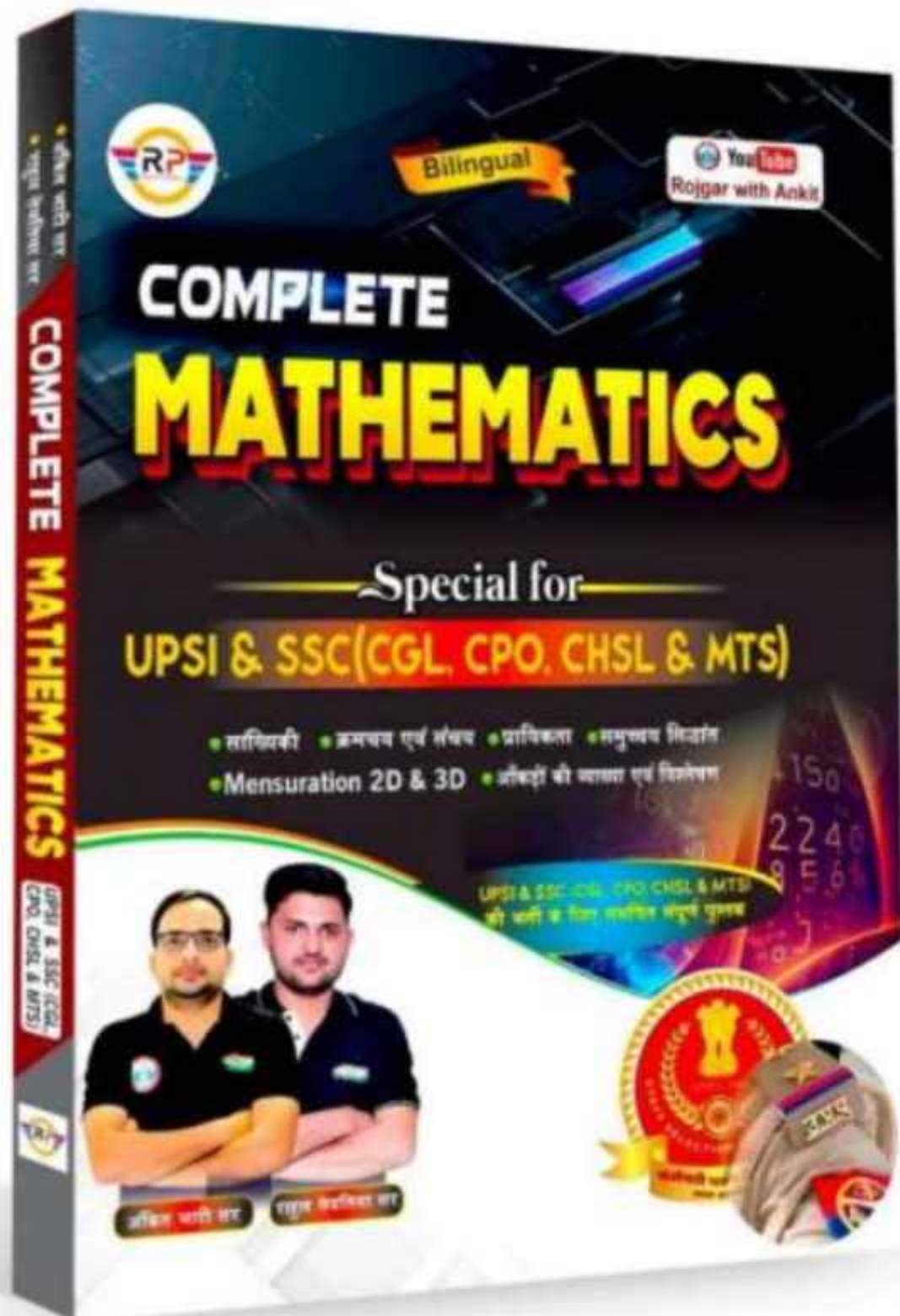
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MATHS





Number System



Classification of Numbers (संख्याओं का वर्गीकरण)



Unit Digit (इकाई का अंक) — 2 class

- **Number of Zero** (शून्यों की संख्या)
- **Rules of Divisibility** (विभाज्यता के नियम)
- **Remender Theorom** (शेषफल परिमेय)

UNIT DIGIT

इकाई का अंक

1655

→ unit (इकाई)

→ tens (दहाई)

Hundred = सैकड़ा

→ Thousand (हज़ार)

$$\cancel{4} \cancel{6} 2 8 \times \cancel{9} \cancel{5} \cancel{2} 6 \textcircled{1}$$

$$8 \times 1 = \textcircled{8}$$

$$\cancel{2} \cancel{9} 6 \textcircled{4} + \cancel{4} \cancel{6} \textcircled{2}$$

$$4 + 2 = \textcircled{6}$$

$$\begin{array}{r} 2964 \\ + 462 \\ \hline 342\textcircled{6} \\ \hline \hline \end{array}$$

(Type-1)



(Basic Type)



1. What is the unit's digit of 12121?

12121 का इकाई अंक क्या है?

1. 1

2. 4

3. 5

4. 7



2. Tell the units digit in $37851+2918$.

~~37851~~+~~2918~~ में इकाई का अंक बताओ।

~~(a) 9~~

(b) 8

(c) 5

(d) 3

$$1+8=9$$



$$\begin{aligned} & \overbrace{2+5+1} - 5 \\ & 8 - 5 \\ & = 3 \end{aligned}$$

3. What will be the units digit in

$$312542 + 1445 + 13141 - 7825.$$

~~312542 + 1445 + 13141 - 7825~~ में इकाई
अंक क्या होगा।

(a) 5

✓ (b) 3

(c) 0

(d) 2



4. What will be the unit digit in $6187292 - 785434$.

$6187292 - 785434$ में ईकाई अंक क्या होगा।

$$2 - 4 = -2$$

$$\text{Unit digit} = 10 - 2$$

$$= 8$$

(a) 5

(b) 7

(c) 8

(d) 2

$$\cancel{59211} - \cancel{218} - \cancel{411}$$

$$1 - \underline{8} - \underline{1}$$

$$1 - 9 \\ = -\textcircled{8}$$

$$\text{Unit digit} = 10 - 8 = \textcircled{2}$$



5. Tell the unit digits in $716 \times 312 \times 118$.

$$6 \times 2 \times 8$$

12

16

Unit Digit

(a) 5

(b) 6

(c) 8

(d) 9

$71\underline{6} \times 31\underline{2} \times 11\underline{8}$ में इकाई अंक बताओ।

$$988 \times 477 \times 697 \times 188$$

$$8 \times 7 \times 7 \times 8$$

5(6)

4(2)

1(6)

unit digit



Handwritten diagram showing the expression $6 \times 9 \times 1 \times 2 \times 0$. Above the numbers, the digits 5, 4, 4, 8, and 0 are circled in green. Arrows connect these circled digits to the numbers 6, 9, 1, 2, and 0 respectively. A white oval is drawn under the entire expression, and a white arrow points up to the final 0.

Ans = 0

6. What is the unit digit of the expression

व्यंजक का इकाई अंक क्या है?

$$13456 \times 45789 \times 23871 \times 667832 \times 23560?$$

1. 1

2. 2

3. 6

✓ 4. 0

0 X any number = 0

2 x 5 = 10

10

259 X .5 22 X 666 X 95 5

10

— 0 — = 0



7. The unit's digit in the product $274 \times 318 \times 577 \times 313$ is

गुणनफल $274 \times 318 \times 577 \times 313$ में इकाई का अंक है

$$4 \times 8 \times 7 \times 3$$

Handwritten calculation showing the unit digits of the factors: 4, 8, 7, and 3. Below each digit is a circled number representing its unit digit: 3, 2, 4, and 3 respectively. Curved lines connect the digits to their corresponding circled unit digits.

(a) 2

(b) 3

(c) 4

(d) 5



$$3 \times 6 \times N$$

Handwritten notes: A bracket under 3 and 6 points to a circled 18. An arrow from 6 and N points to a circled 8N.

Handwritten calculations:

$$\begin{array}{r} 8 \\ 64 \\ \hline 24 \\ 48 \end{array}$$

Handwritten notes: A circled $N+2$ and a vertical list of numbers 3, 10, 15, and a circled 20.

8. If the units digit of $433 \times 456 \times 43N$ is $(N + 2)$, then what is the value of N ?

यदि $433 \times 456 \times 43N$ का इकाई अंक $(N + 2)$ है, तो N का मान क्या है?

- | | |
|------------------|------------------|
| (1) 1 | (2) 8 |
| (3) 3 | <u>(4) 6</u> |

a^b

Unit digit of powers

ध्यात वाली संख्याओं के इकाई के आंक

$$(\cancel{4}1\textcircled{2})^6 = 2^6$$

$$(\cancel{9}2\textcircled{8})^{9218} = 8^{9218}$$

Cyclicity (चक्र)

$2^0 = 1$	$2^4 = 16$	$2^8 = 256$
$2^1 = 2$	$2^5 = 32$	$2^9 = 512$
$2^2 = 4$	$2^6 = 64$	$2^{10} = 1024$
$2^3 = 8$	$2^7 = 128$	
$2^4 = 16$	$2^8 = 256$	
$2^5 = 32$	$2^9 = 512$	
$2^6 = 64$	$2^{10} = 1024$	
$2^7 = 128$		
$2^8 = 256$		
$2^9 = 512$		
$2^{10} = 1024$		

Cycle = a^4
Power 4

$$2^1 = 2$$

$$2^2 = 4$$

$$2^3 = 8$$

$$2^4 = 16$$

$$3^1 = 3$$

$$3^2 = 9$$

$$3^3 = 27$$

$$3^4 = 81$$

$$4^1 = 4$$

$$4^2 = 16$$

$$4^3 = 64$$

$$4^4 = 256$$

$$7^1 = 7$$

$$7^2 = 49$$

$$7^3 = 343$$

$$7^4 = 2401$$

$$8^1 = 8$$

$$8^2 = 64$$

$$8^3 = 512$$

$$8^4 = 4096$$

$$9^1 = 9$$

$$9^2 = 81$$

$$9^3 = 729$$

$$9^4 = 6561$$

$$\frac{\text{Power}}{4}$$

ଶିଫ =

$$2^4 = 1 \textcircled{6}$$

ing

$$2^{244}$$

~~$$2^0 = 1$$~~

$$\frac{244}{4} \quad \boxed{R=0}$$

Q $(121)^{522} \times (666)^{221} \times (55)^{44}$

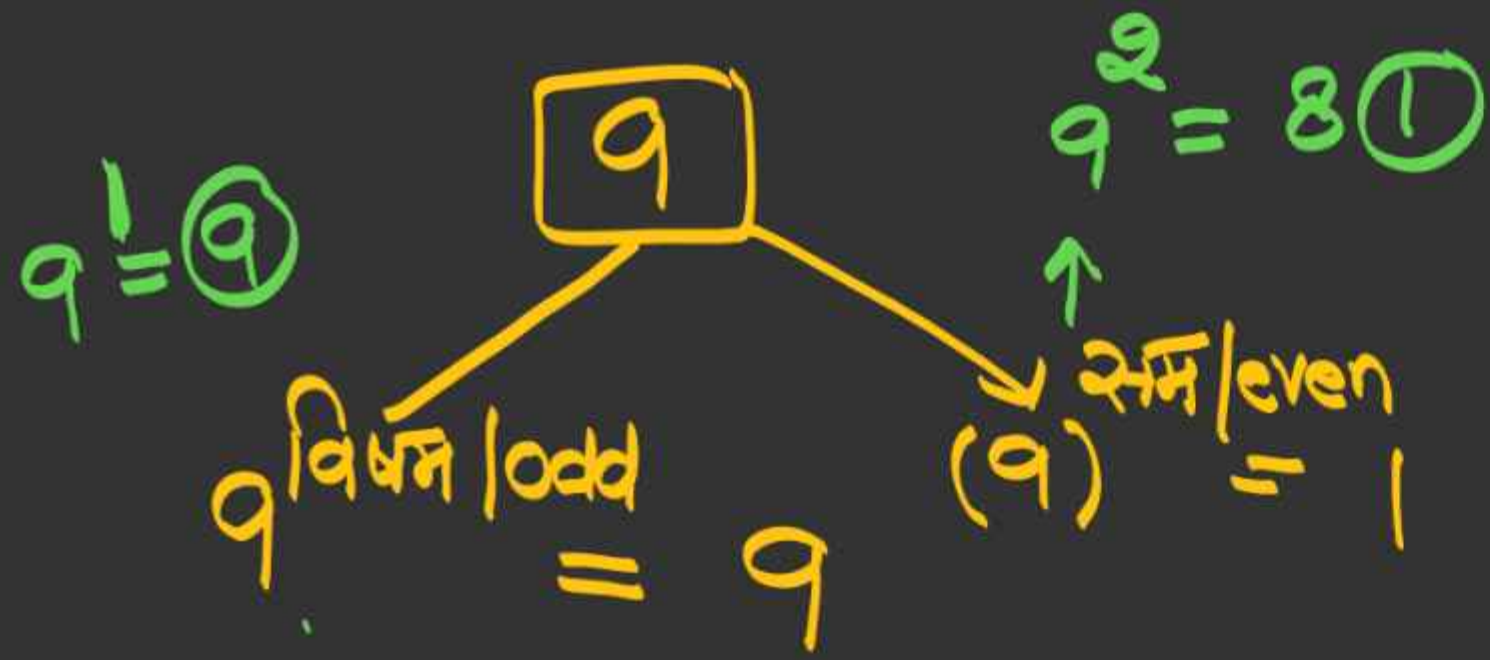
$1 \times 6 \times 5$
 $\quad \quad \quad 6$
 $\quad \quad \quad 3 \textcircled{0}$
 $\quad \quad \quad 12$

$(0)^{\text{any power}} = 0$

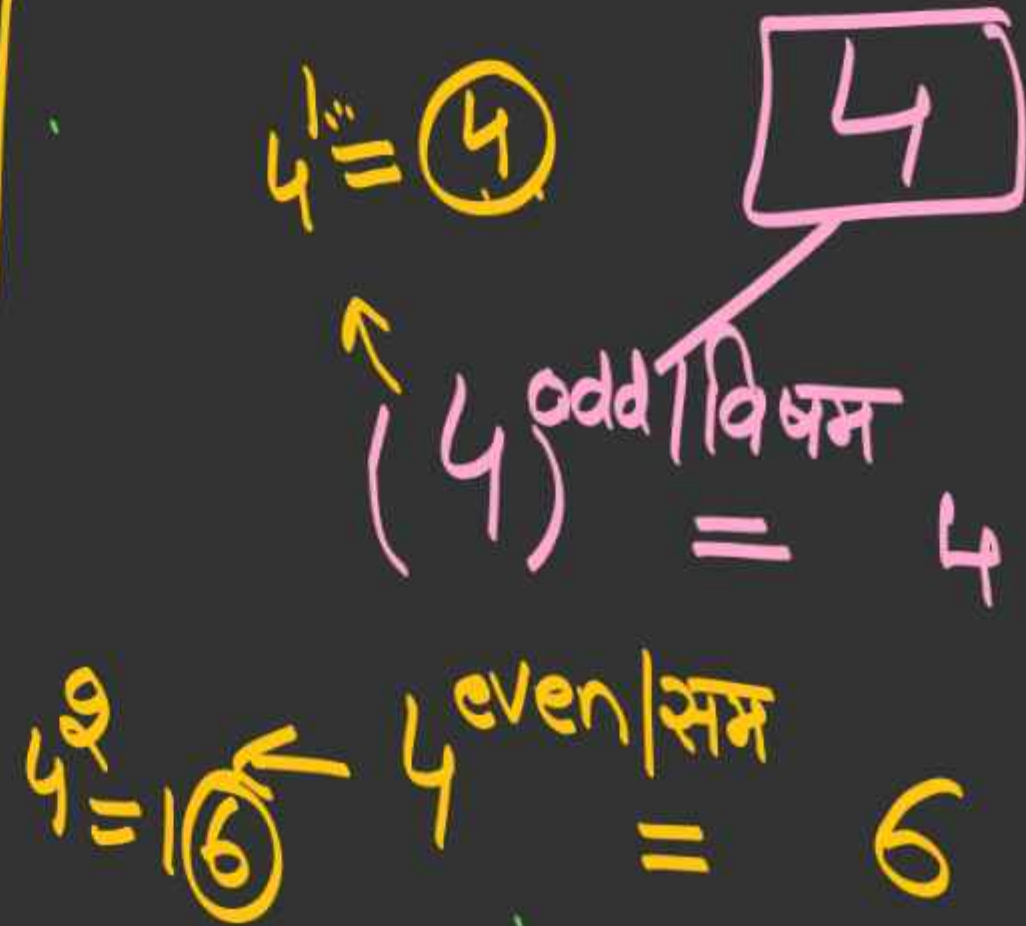
$(1)^{\text{any power}} = 1$

$(5)^{\text{any power}} = 5$

$(6)^{\text{any power}} = 6$



0, 1, 5, 6, 4, 9



2, 3, 7, 8



Cyclicity.

$$8^4 = 8^2 \times 8^2$$

64 x 64

16

A handwritten diagram illustrating the calculation of 8^4 . It starts with the equation $8^4 = 8^2 \times 8^2$. Below this, the values 64 and 64 are written, representing 8^2 . A curved line connects the two 64s, and below it, the number 16 is written and circled. A large curved arrow originates from the 8^4 term and points to the circled 16.

$$9^4 = 9^2 \times 9^2$$

81 x 81

1

A handwritten diagram illustrating the calculation of 9^4 . It starts with the equation $9^4 = 9^2 \times 9^2$. Below this, the values 81 and 81 are written, each with a circled 1 next to it, representing 9^2 . A curved line connects the two 81s, and below it, the number 1 is written and circled. A large curved arrow originates from the 9^4 term and points to the circled 1.

$$\boxed{2^{14}}$$

$$\frac{14}{4} \text{ शेष} = 2$$

$\Rightarrow$

$$\| 2^2 = 4$$

$$7^{50}$$

$$\frac{50}{4} \boxed{\text{शेष} = 2}$$

$$= 7^2 = 49$$



9. What is the last digit in the expansion of 3^{4798} ?

3^{4798} के विस्तार में अंतिम अंक क्या है?

(a) 1

(b) 3

(c) 7

(d) 9

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