



UNIT DIGIT

59237 → 7

2398 × 856 × 982 × 637 =

U.D

2



digits $\rightarrow$ (0-9)

$(\dots 0)^2 = 0$ ^{U.D}

$(\dots 1)^2 = 1$

$(\dots 2)^2 = 4$

$(\dots 3)^2 = 9$

$(\dots 4)^2 = 6$

$(\dots 5)^2 = 5$ ^{U.D}

$(\dots 6)^2 = 6$

$(\dots 7)^2 = 9$

$(\dots 8)^2 = 4$

$(\dots 9)^2 = 1$

किसी भी Perfect square No का Unit digit 2,3,7 और 8 नहीं हो सकता

$n^2 \rightarrow$ Perfect square form

Unit Digit

$5 \times \text{even no} \rightarrow 0$

Unit Digit

$5 \times \text{odd no} \rightarrow 5$

$$235 \times 147 \times 9646 = \dots\dots\dots 0$$




#

0,1,5,6 की कोई भी power
करो Unit digit same रहेगा

Unit Digit

$$(\dots 0)^n = 0$$

$$(\dots 1)^n = 1$$

$$(\dots 5)^n = 5$$

$$(\dots 6)^n = 6$$

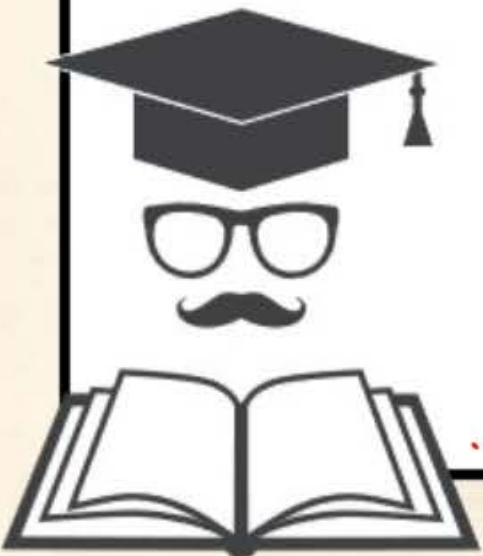
544 U.D.
~~174~~6 $\rightarrow$ 6

$$6^1 = 6$$

$$6^2 = 36$$

$$6^3 = 216$$

$$6^4 = 1296$$



4 :-

$$\left. \begin{array}{l} (...4)^{\text{odd}} = 4 \\ (...4)^{\text{even}} = 6 \end{array} \right\} \text{UD}$$

$$4^1 \checkmark = \textcircled{4} \quad \text{U.D}$$

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

$$4^3 \checkmark = \textcircled{4}$$

$$4^4 \checkmark = \textcircled{6}$$

$$4^5 \checkmark = \textcircled{4}$$

$$\cancel{38}4 \xrightarrow{97} 4 \quad \text{U.D}$$

9 :-

$$\left. \begin{array}{l} (...9)^{\text{odd}} = 9 \\ (...9)^{\text{even}} = 1 \end{array} \right\} \text{UD}$$

$$9^1 \checkmark = \textcircled{9} \quad \text{U.D}$$

$$9^2 \checkmark = \textcircled{1}$$

$$9^3 \checkmark = \textcircled{9}$$

$$9^4 \checkmark = \textcircled{1}$$

...

$$\cancel{59} \xrightarrow{46} 1 \quad \text{U.D}$$

$\div 4$

Rem ① $\rightarrow 2^1 = 2$

Rem ② $\rightarrow 2^2 = 4$

Rem ③ $\rightarrow 2^3 = 8$

Rem ④ $\rightarrow 2^4 = 6$

~~542~~ 1896 $\rightarrow 2^4 = 16$

2 :

U·D

$2^1 = 2$

$2^2 = 4$

$2^3 = 8$

$2^4 = 6$

$2^5 = 2$

$2^6 = 4$

$2^7 = 8$

$2^8 = 6$

$2^9 = 2$

$2^{10} = 4$

~~3582~~ ^{gg} → ^{0.1}₃ 2 = 8 ✓

$\frac{gg}{4} = \frac{Ror}{3}$

2 ^① 2 ^{~~5~~} 2 ^{~~9~~} 2 ^{~~13~~} 2 ^{~~17~~} - - - - 2 ^{~~85~~}

சாதாரண U.D = 2

हर 4 power के बाद unit digit repeat होती है।

✓ 2,3,7 and 8 के case में यही होता है।



unit digit of 2^n = unit digit of 2^{n+4}

If, ~~472^n~~ $\rightarrow UD = 8$ ^{if}

Then,

$472^{n+36} \rightarrow UD = 8$

$$\cancel{9}2^{96^{97}} = 2^4 \xrightarrow{U.D.} \boxed{6}$$

$$\frac{96^{97}}{4} = \text{Rem } 0$$

3:-

~~3²⁵⁷~~

=

$$3^1 = \textcircled{3}$$

~~653⁷⁴~~

=

$$3^2 = \textcircled{9}$$

U.D

U D

$$3^1 = 3 \rightarrow \text{Rem 1}$$

$$3^2 = 9 \rightarrow \text{Rem 2}$$

$$3^3 = 7 \rightarrow \text{Rem 3}$$

$$3^4 = 1 \rightarrow \text{Rem 4}$$

$$3^5 = 3$$

$$3^6 = 9$$

$$3^7 = 7$$

$$3^8 = 1$$



7:-

$$\cancel{237}^{864} = 7^4 = \overset{0 \cdot 1}{\textcircled{1}}$$

$$\cancel{577}^{3941} = 7^3 = \overset{0 \cdot 1}{3} \checkmark$$



$$\frac{39^{41}}{4} = \overset{\text{Rem}}{(-1)^{41}} = -108 \underline{3}$$

	U	D	
$7^1 = 7$	→	→	Rem 1
$7^2 = 9$	←	←	Rem 2
$7^3 = 3$	→	→	Rem 3
$7^4 = 1$	→	→	Rem 0
$7^5 = 7$			
$7^6 = 9$			
$7^7 = 3$			
$7^8 = 1$			

8 :-

U D

$$8^1 = 8$$

$$8^2 = 4$$

$$8^3 = 2$$

$$8^4 = 6$$

~~8^{106}~~ →

U D
 $8^2 = 4$

U D

$$8^1 = 8$$

$$8^2 = 4$$

$$8^3 = 2$$

$$8^4 = 6$$

$$8^5 = 8$$

$$8^6 = 4$$

$$8^7 = 2$$

$$8^8 = 6$$

1. Which of the following can't be the unit's digit of a perfect square?

निम्नलिखित में से कौन-सा पूर्ण वर्ग का इकाई अंक नहीं हो सकता है?

[A] 4

☒ [B] 8

[C] 9

[D] 6

U.D $\rightarrow$ 2, 3, 7, 8X

2. The digit in unit's place of the product $81 \times 82 \times 83 \times \dots \times 89$ is

$81 \times 82 \times 83 \times 85 \times 89$ के गुणनफल का इकाई अंक क्या है?

[A] ~~0~~

[B] 2

[C] 6

[D] 8

3. What is the unit digit of: $167 \times 2183 \times 497 \times 839 \times 235 \times 111 \times 1039 \times 251 \times 563$?

$167 \times 2183 \times 497 \times 839 \times 235 \times 111 \times 1039 \times 251 \times 563$ का इकाई अंक क्या है?

[A] 0

~~[B] 5~~

[C] 1

[D] 7

4. What is the unit digit in the multiplication of $1 \times 3 \times 5 \times 7 \times 9 \times \dots \times 999$?

$1 \times 3 \times 5 \times 7 \times 9 \times \dots \times 999$ के गुणन में इकाई अंक क्या है?

(UPSC CSAT 2025)

[A] 1

[C] 5 ✓

[B] 3

[D] 9

5. What is the unit digit of the sum of first 111 whole numbers?

प्रथम 111 पूर्ण संख्याओं के योग का इकाई अंक क्या है?

[A] 4

[B] 6

[C] 5

[D] 0

$$0 + 1 + 2 + 3 + 4 + \dots + 110 = \frac{111 \times 111}{2} = \dots = 5$$

$$1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$$

6. For any natural number n , $756^n - 345^n$ always ends with :-
किसी भी प्राकृतिक संख्या n के लिए, $756^n - 345^n$ का अंतिम अंक सदैव _____ होगा।

RRB NTPC 28/12/2020 (Evening) $\dots 6 - \dots 5 = 1$

[A] 5

[B] 3

[C] 7

[D] 1 ✓

7. What is the digit in the unit place of 2^{51} ?

2^{51} के इकाई स्थान पर कौन सा अंक होगा?

[A] 2

[B] 8

[C] 1

[D] 4

$\frac{51}{2} \rightarrow 2^3 = 8$ U.D

8. The rightmost non-zero digit of the number 30^{2928} ?

संख्या 30^{2928} का सबसे दाया गैर-शून्य अंक क्या है ?

[A] 1

[C] 7

[B] 3

[D] 9

$(3 \times 10)^{2928}$
 ~~3×10^{2928}~~

$$U.D = 3^4 = 1$$

5931870000

9. Find the digit in the thousands position of $5^3 * 2^{1001}$

$5^3 * 2^{1001}$ का हज़ारवें स्थान का अंक ज्ञात करो ?

[A] 2

[C] 0

☒ [B] 4

[D] 8

~~998~~
 ~~2^{998}~~ ~~$\times 1000$~~
 $\downarrow$
 $= 2^2 = 4$

10. If the unit's digit of 3333^n is 7 . then what is the unit's digit of 7777^n ?
यदि 3333^n के इकाई का अंक 7 है तो 7777^n के इकाई का अंक ज्ञात करो ?

[A] 1

[C] 7

☒ [B] 3

[D] 9

~~3333~~^B $\xrightarrow{\text{U.D}}$ 7

~~7777~~^B $\longrightarrow$ 3

$3^3 = 27$

11. The remainder when 731^{732} is divided by 9 is 'a'. Then the unit's place of a^{332211} is :

731^{732} को 9 से विभाजित करने पर शेषफल a प्राप्त होता है। तब a^{332211} का इकाई मान ज्ञात करें।

[A] 3

[B] 2

[C] 1

[D] 4

$$\begin{array}{l} \text{732} \\ \cancel{731} \\ \hline 9 \end{array} = \begin{array}{l} \text{732} \\ 2 \\ \hline 9 \end{array} = \begin{array}{l} \text{244} \\ (8) \\ \hline 9 \end{array} = \text{Rem } 1 = a$$

12. If the unit digit of $6348 \times 24989 \times 36N$ is $(N-2)$, then what is the value of N ?

यदि $6348 \times 24989 \times 36N$ का इकाई अंक $(N-2)$ है, तो N का मान क्या है?

[A] ~~7~~

[C] ☒ 8

[B] 4

[D] 6

$$\begin{array}{ccc} & & \text{U.D} \\ 2 \times 8 & \rightarrow & (N-2) \\ 6 & & 6 \end{array}$$

13. The unit's digit of $(1373)^{36} - (1442)^{20}$ is:

$(\cancel{1373})^{36} - (\cancel{1442})^{20}$ का इकाई अंक है:

[RRB ALP CBT-2 2019]

[A] 3 $3^4 - 2^4$

[C] 2 $\dots 1 - \dots 6 = 5$

$$\begin{array}{r} 241 \\ - 56 \\ \hline \dots 5 \end{array}$$

☒ [B] 5

[D] 4

14. The digit in unit's place of the product $(2153)^{167} \times (8267)^{153}$ is :

गुणनफल $(2153)^{167} \times (8267)^{153}$ के इकाई स्थान पर अंक होगा:

[A] 1

[C] 7

$$\begin{aligned} & \overset{3}{3} \times \overset{1}{7} \\ &= 7 \times 7 \\ &= \dots 9 \end{aligned}$$

[B] 3

[D] 9

15. What is the unit digit of $(217)^{413} \times (819)^{547} \times (414)^{624} \times (342)^{812}$?

$(\cancel{217})^{413} \times (\cancel{819})^{547} \times (\cancel{414})^{624} \times (\cancel{342})^{812}$ का इकाई अंक क्या है?

[A] 2

[B] 4

[C] 6

[D] 8

Handwritten solution:

Unit digit of 217 is 7 (odd power 413), unit digit of 819 is 9 (odd power 547), unit digit of 414 is 4 (even power 624), unit digit of 342 is 2 (even power 812).

U.D $\rightarrow 7 \times 9 \times 6 \times 6$

$= 8$

16. The unit digit of $(137^{13})^{47}$ is:

$(137^{13})^{47}$ का इकाई अंक है:

[A] 1

[C] 5

~~137~~

13×47

$$= \overset{3}{7} = \overset{UD}{3}$$

✓ [B] 3

[D] 7

$$\begin{array}{r} \textcircled{1} \times \textcircled{3} \\ 13 \times 47 \\ \hline 4 \end{array} = 3$$

$$(a^m)^n = a^{m \times n}$$

17. What is the unit digit of $17^{19^{23^{29}}}$

~~17~~^{19^{23²⁹}} का इकाई का अंक ज्ञात करें।

[A] 1

[C] 7

✓ [B] 3

[D] 9

$$\frac{19}{4} = (-1)^{23^{29}} = -1 \text{ or } 3$$

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

यदि $x = (164)^{169} + (333)^{337} - (727)^{726}$, तो x का इकाई अंक क्या है?

[A] 5

[C] 8

[B] 9

[D] 7

$$= 4 + 3 - 9$$

$$= \dots 7 - 9$$

$$= 8$$

19. Find the unit digit of $1! + 2! + 3! + 4! + 5! + \dots + 3333!$?

$1! + 2! + 3! + 4! + 5! + \dots + 3333!$ का इकाई अंक ज्ञात कीजिए?

[A] 1

[B] 9

[C] 3 ✓

[D] 4

$$\underbrace{1 + 2 + 6 + 24}_{= 3} + \underbrace{120 + 720 + \dots}_{= 0}$$

20. What is the unit digit of $973^{234!} \times 234^{973!}$?

~~973~~^{~~234!~~} ~~× 234~~^{973!} का इकाई अंक क्या है?

[A] 2

[B] 6 ✓

[C] 7

[D] 9

$$1 \times 6 = 6$$

$$234! = 234 \times 233 \times \dots \times 4 \times 3 \times 2 \times 1$$

4^{elem}

22. What is the unit digit of $1^5+2^5+3^5+4^5+5^5+\dots+98^5$?

$1^5+2^5+3^5+4^5+5^5+\dots+98^5$ का इकाई अंक क्या है?

[A] 0

[B] 5

[C] 2

[D] 1

$$1+2+3+4+5+\dots+98$$

$$= \frac{98 \times 99}{2}$$