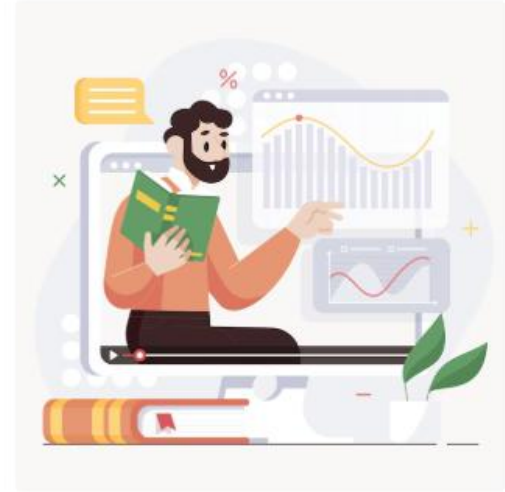


Quantitative Aptitude: Number Systems

Unit's Place



Unit's Place: Problems Level 1



Q1. What is the last digit of the expression 777^{777} ?

A. 3

B. 1

✓ C. 7

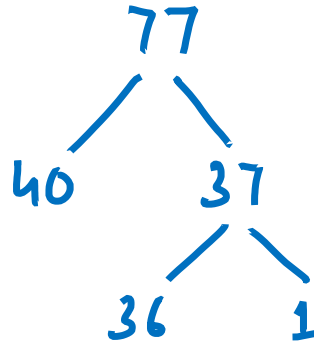
D. 9

$$\begin{aligned} & 777^{777} \\ \Rightarrow & 7^{777} \end{aligned}$$

$$\frac{777}{4} \Rightarrow \frac{77}{4} \Rightarrow 1$$

$$\Rightarrow 7^1 = 7$$

$$\begin{aligned} & 7 \\ & \swarrow \searrow \\ & 9 \quad 3 \\ & \swarrow \searrow \\ & 1 \end{aligned}$$



Q2. The unit's digit of the product $3^{1001} \times 7^{22002} \times 13^{333003}$ is:

A. 3

B. 1

C. 5

☒ D. 9

$$\begin{aligned}
 & 3^{\overline{1001}} \times 7^{\overline{22002}} \times 13^{\overline{333003}} \\
 \Rightarrow & 3^{01} \times 7^{02} \times 13^{03} \\
 = & 3 \times 9 \times 7 \\
 = & 7 \times 7 \\
 = & \underline{\underline{9}}
 \end{aligned}$$

$$\begin{array}{r}
 3 \sqrt{3} \\
 \sqrt{9} \\
 \sqrt{7} \\
 \sqrt{1}
 \end{array}$$

$$\begin{array}{r}
 7 \sqrt{7} \\
 \sqrt{9} \\
 \sqrt{3} \\
 \sqrt{1}
 \end{array}$$

Q3. The unit's digit of the sum $\underline{22}^{222} + \underline{33}^{333} + \underline{44}^{444}$ is:

✓ A. 3

B. 1

C. 5

D. 9

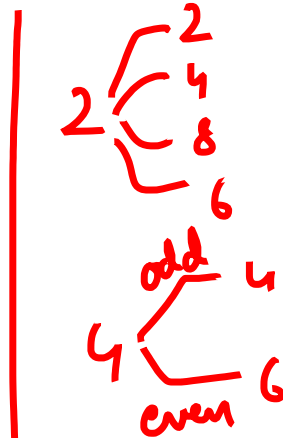
$$2^{222} + 3^{333} + 4^{444}$$

$$\frac{222}{4} \Rightarrow \frac{22}{4} \xrightarrow{R} 2$$

$$\frac{333}{4} \Rightarrow \frac{33}{4} \xrightarrow{R} 1$$

$$2^2 + 3^1 + 4^{\text{even}}$$

$$= 4 + 3 + 6 = 13 \Rightarrow 3 //$$



Q4. What is the last digit of the expression
 $\underline{13}^{246} \times \underline{98}^{531} + \underline{34}^{567}$?

A. 6

B. 4

✓ C. 2

D. 9

$$\begin{aligned}
 & 3^{246} \times 8^{531} + 4^{\text{odd}} \\
 & \frac{246}{4} \Rightarrow \frac{46}{4} \xrightarrow{R} 2 \quad \bigg| \quad \frac{531}{4} \Rightarrow \frac{31}{4} \xrightarrow{R} 3 \\
 & 3^2 \times 8^3 + 4 \\
 & 9 \times 2 + 4 \\
 & 8 + 4 = 12 \Rightarrow 2 //
 \end{aligned}$$

$$\begin{aligned}
 & 3 \begin{cases} 3 \\ 5 \\ 7 \\ 1 \end{cases} \\
 & 4 \begin{cases} 4 \\ 6 \\ 2 \end{cases}
 \end{aligned}$$

$$8 \begin{cases} 8 \\ 4 \\ 2 \\ 6 \end{cases}$$

Q5. What is the last digit of the expression

$$\underline{23}^{1234} + \underline{55}^{777} \times \underline{66}^{888} ?$$

A. 3

B. 1

C. 7

✓ D. 9

$$\begin{aligned} & 3^{1234} + 5 \times 6 \\ \Rightarrow & 3^{1234} + 0 \Rightarrow 3^{1234} \end{aligned}$$

$$\frac{1234}{4} \Rightarrow \frac{34}{4} \xrightarrow{R} 2$$

$$\Rightarrow 3^2 = \underline{\underline{9}}$$

$$\begin{array}{r} 3 \overline{) 3} \\ \underline{3} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array} \quad \begin{array}{l} 5 \rightarrow 5 \\ 6 \rightarrow 6 \end{array}$$

Q6. What is the last digit of the expression
 $123^{12} + 642^{56} \times 678^{468}$?

A. 3

B. 1

☒ C. 7

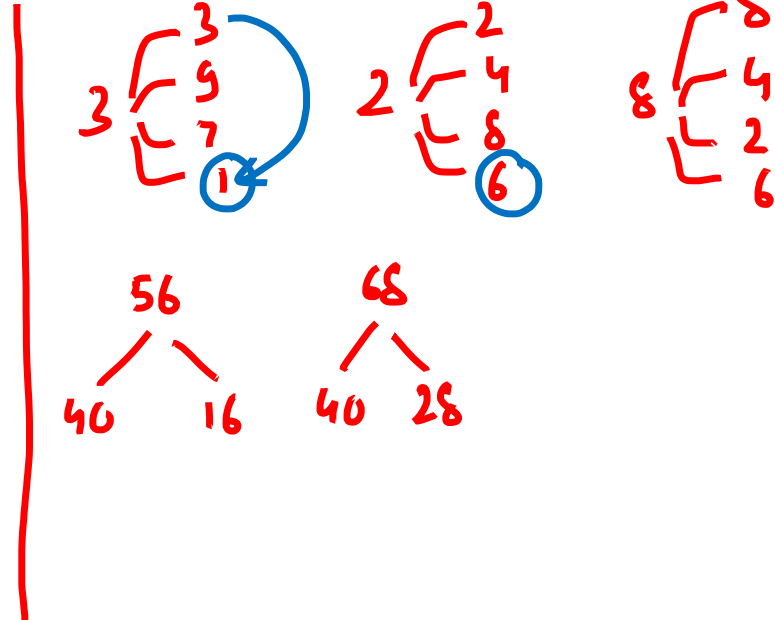
D. 9

$$3^{12} + 2^{56} \times 8^{468}$$

$$\frac{12}{4} \text{ R } 0 \mid \frac{56}{4} \text{ R } 0 \mid \frac{468}{4} \Rightarrow \frac{68}{4} \text{ R } 0$$

$$1 + 6 \times 6$$

$$\Rightarrow 1 + 6 \Rightarrow \underline{\underline{7}}$$





Thanks!

