



CALCULATION-04

CUBE (घन)

CLASS NOTES

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CUBE / घन

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$$\begin{aligned}1^3 &= 1 \\2^3 &= 8 \\3^3 &= 27 \\4^3 &= 64 \\5^3 &= 125 \\6^3 &= 216 \\7^3 &= 343 \\8^3 &= 512 \\9^3 &= 729 \\10^3 &= 1000\end{aligned}$$

$$\begin{aligned}11^3 &= 1331 \\12^3 &= 1728 \\13^3 &= 2197 \\14^3 &= 2744 \\15^3 &= 3375 \\16^3 &= 4096 \\17^3 &= 4913 \\18^3 &= 5832 \\19^3 &= 6859 \\20^3 &= 8000\end{aligned}$$

$$\begin{aligned}21^3 &= 9261 \\25^3 &= 15625\end{aligned}$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$\begin{aligned} (23)^3 &= 2^3 / 3 \times 2^2 \times 3 / 3 \times 2 \times 3^2 / 3^3 \\ &= 8 / 36 / 54 \\ &= / 27 \\ &= \underline{12167} \end{aligned}$$

CUBE OF A TWO DIGIT NUMBER

दो अंकों की संख्या का घन

$$ab = a^3 / 3a^2b / 3ab^2 / b^3$$

+ Carry + Carry + Carry

1 digit 1 digit 1 digit

Find the cube of 14

Here, $a = 1$ & $b = 4$

$$\begin{aligned}14^3 &= 1^3 / 3 \cdot 1^2 \cdot 4 / 3 \cdot 1 \cdot 4^2 / 4^3 \\ &= 1 / 12 / 48 / 64 \\ &= 2744\end{aligned}$$

Find the cube of **23**

Here, $a = 2$ & $b = 3$

$$\begin{aligned}23^3 &= 2^3 / 3.2^2.3 / 3.2.3^2 / 3^3 \\ &= 8 / 36 / 54 / 27 \\ &= 12167\end{aligned}$$

Find the cube of 38

Here, $a = 3$ & $b = 8$

$$\begin{aligned}38^3 &= 3^3 / 3.3^2.8 / 3.3.8^2 / 8^3 \\ &= 27 / 216 / 576 / 512 \\ &= 54872\end{aligned}$$

Find the cube of **79**

Here, $a = 7$ & $b = 9$

$$\begin{aligned}79^3 &= 7^3 / 3 \cdot 7^2 \cdot 9 / 3 \cdot 7 \cdot 9^2 / 9^3 \\ &= 343 / 1323 / 1701 / 729 \\ &= 493039\end{aligned}$$

Find the cube of 79

Here, $a = 7$ & $b = 9$

$$\begin{aligned}79^3 &= 7^3 / 3 \cdot 7^2 \cdot 9 / 3 \cdot 7 \cdot 9^2 / 9^3 \\ &= 343 / 1323 / 1701 / 729 \\ &= 493039\end{aligned}$$

$$16^3 = 1 / \underline{18} / \underline{108} / \underline{816} \\ = \underline{4096}$$

$$34^3 = 27 / \underline{108} / \underline{144} / 64 \\ = 39304$$

$$84^3 = 512 / \underline{768} / \underline{384} / 64 \\ = \underline{592404}$$

$$62^3 = 216 / \underline{216} / \underline{42} / 8$$
$$= \underline{238328}$$

$$71^3 = 343 / \underline{147} / \underline{21} / 1$$
$$= \underline{357911}$$

✓

$$22^3 = \underline{\text{Ans in Comment+Box}}$$

$$87^3 =$$

$$69^3 =$$

$$43^3 =$$

$$51^3 =$$

$$59^3 =$$

$$74^3 =$$

CUBE OF A THREE DIGIT NUMBER

तीन अंकों की संख्या का घन

1 digit

$$a \mathbf{b} = a^3 / 3a^2b / 3ab^2 / b^3$$

+ Carry

+ Carry

+ Carry

2 digit

2 digit

2 digit

2 digit

$$\left(\frac{104}{a \ b}\right)^3 = a^3 / 3a^2b / 3ab^2 / b^3$$

$$(104)^3 = 1 / \underline{12} / \underline{48} / 64$$

=

$$\underline{1 \ 12 \ 48 \ 64}$$

Find the cube of **104**

Here, $a = 1$ & $b = 4$

$$\begin{aligned}104^3 &= 1^3 / 3.1^2.4 / 3.1.4^2 / 4^3 \\ &= 1 / 12 / 48 / 64 \\ &= 1124864\end{aligned}$$

Find the cube of **206**

Here, $a = 2$ & $b = 6$

$$\begin{aligned}206^3 &= 2^3 / 3.2^2.6 / 3.2.6^2 / 6^3 \\ &= 8 / 72 / 216 / 216 \\ &= 8741816\end{aligned}$$

Find the cube of **312**

Here, $a = 3$ & $b = 12$

$$\begin{aligned}206^3 &= 3^3 / 3.3^2.12 / 3.3.12^2 / 12^3 \\ &= 27 / 324 / 1296 / 1728 \\ &= 30371328\end{aligned}$$

$$\begin{aligned} \underline{806^3} &= 512 / \underline{1152} / \underline{864} / 216 \\ &= \underline{523606616} \end{aligned}$$

$$\begin{aligned} 506^3 &= 125 / \underline{450} / \underline{540} / 216 \\ &= \underline{129554216} \end{aligned}$$

$$109^3 =$$

$$\begin{aligned} 408^3 &= 4^3/3 \times 4^2 \times 8 / 3 \times 4 \times 8^2 / 8^3 \\ &= 64 / 384 / 768 / 512 \\ &= \underline{64 \ 91 \ 73 \ 12} \end{aligned}$$

$$(509)^3 = 125/675/1215/429$$

$$\underline{131872229}$$

$$(904)^3 = \text{Ans in Comment } \underline{\text{Box}}$$

$$\begin{aligned} \underbrace{(213)}_a \underbrace{^3}_b &= 2^3 / 3 \times 2^2 \times 13 / 3 \times 2 \times (13)^2 / (13)^3 \\ &= 8 / 156 / 1014 / 2197 \\ &= \underline{\underline{9663597}} \end{aligned}$$

$$(412)^3 = 64 \mid \underline{576} \mid \underline{1728} \mid \underline{1728}$$

$$\underline{69934528}$$

$$711^3 = 343 / 1617 / 2541 / 1331$$

$$\underline{359425431}$$

$(912)^3 = \text{Plus in comment box}$

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