

Calculation का महत्त्व वेंच

Class-3

ADDITION (जोड़)

— + —
— — + —
— — + — —
— — + — — + — — + — — —
— — — + — — —
— — — + — — — + — — — —
— — — + — — — + — — — + — — — —

TYPE-7

Mix Variety

Basic Addition

Funish

$$\checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark$$
$$879 + 87 + 52 + 54 + 71 + 7 + 5 + 3 + 1$$

(a) 1258 (b) 1179

(c) 1169 ~~(d) 1159~~

Ⓓ

✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
 $819 + 23 + 407 + 798 + 723 + 85 + 181$

(a) 3036 (b) 3346

(c) 2426 (d) 2833

(A)

✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
982 + 15 + 933 + 69 + 999 + 823 + 43

(a) 5455 (b) 4456

(c) 4536 (d) 3864

D

✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
 $649 + 757 + 37 + 78 + 73 + 54 + 67$

(a) 1715

(b) 1618

(c) 1814

(d) 1616

Ⓐ

$$812 + 642 + 544 + 792 + 874 + 560 + 65 + 49 + 89 + 7$$

(a) 4333 (b) 4434

(c) 4235 (d) 4236

$$465 + 370 + 87 + 55 + 31 + 521 + 79 + 788 + 99 + 677 + 467 + 99$$

(a) 3648 (b) 3737

(c) 3738 (d) 4838

$$530 + 895 + 505 + 74 + 64 + 98 + 435 + 968 + 452 + 956 + 568 + 992$$

(a) 6537 (b) 6634

(c) 7838 (d) 5338

$$895 + 505 + 74 + 64 + 98 + 435 + 968 + 452 + 956 + 568 + 992$$

(a) 6007 (b) 6608

(c) 7809 (d) 7007

$$860 + 988 + 716 + 05 + 679 + 756 + 756 + 895 + 64$$

(a) 5821 (b) 5818

(c) 5719 (d) 6219

$$953 + 15 + 949 + 69 + 999 + 843 + 456 + 919 + 56 + 577 + 789 + 786 + 79 + 951$$

(a) 7551 (b) 9055

(c) 8842 (d) 8441

$$571 + 35 + 54 + 93 + 87 + 89 + 51 + 14 + 56 + 89 + 88$$

(a) 1317 (b) 1477

(c) 1517 (d) 1227

$$50 + 877 + 898 + 496 + 556 + 698 + 797 + 5814$$

(a) 11285 (b) 10186

(c) 11288 (d) 14176

$$885 + 665 + 73 + 64 + 91 + 435 + 958 + 232 + 856 + 568 + 992$$

(a) 6818 (b) 5816

(c) 4819 (d) 5819

$$223 + 369 + 78 + 13 + 31 + 521 + 99 + 108 + 30 + 677467 + 99$$

(a) 679038 (b) 718237

(c) 657888 (d) 869048

$$83 + 767 + 998 + 466 + 756 + 628 + 997 + 4512$$

(a) 9207 (b) 9205

(c) 8909 (d) 7607

ADDITION (जोड़)

TYPE-8

✓✓
887

✓✓
941

✓✓
428

✓✓
182

✓
64

✓
94

✓✓
312

✓
582

(a) 3680

✓ (c) 3490

(b) 3770

(d) 2589

©

990 ✓

490

678 ✓

45 ✓

235 ✓

23 ✓

451 ✓

47 ✓

A

~~(a)~~ 2959

(c) 2858

(b) 3839

(d) 2859

145

17

678

90

267

56

780

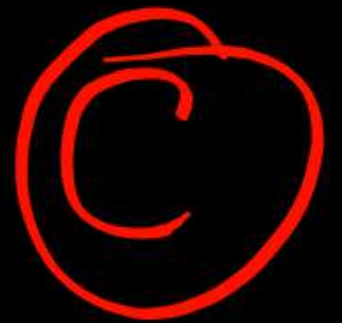
59

(a) 2041

(b) 1993

(c) 2092

(d) 1892



223

54

678

28

456

46

378

76

(a) 1839

(c) 1749

(b) 1939

(d) 1579

B

723

65

189

37

548

378

32

49

(a) 1923 (b) 2121
(c) 2223 (d) 2021

978

45

876

34

75

632

59

478

(a) 3387

(b) 3177

(c) 2777

(d) 3377

116

65

452

31

678

58

789

24

(a) 3113

(b) 2833

(c) 2213

(d) 2323

368

67

785

34

712

45

53

570

(a) 2634

(b) 2744

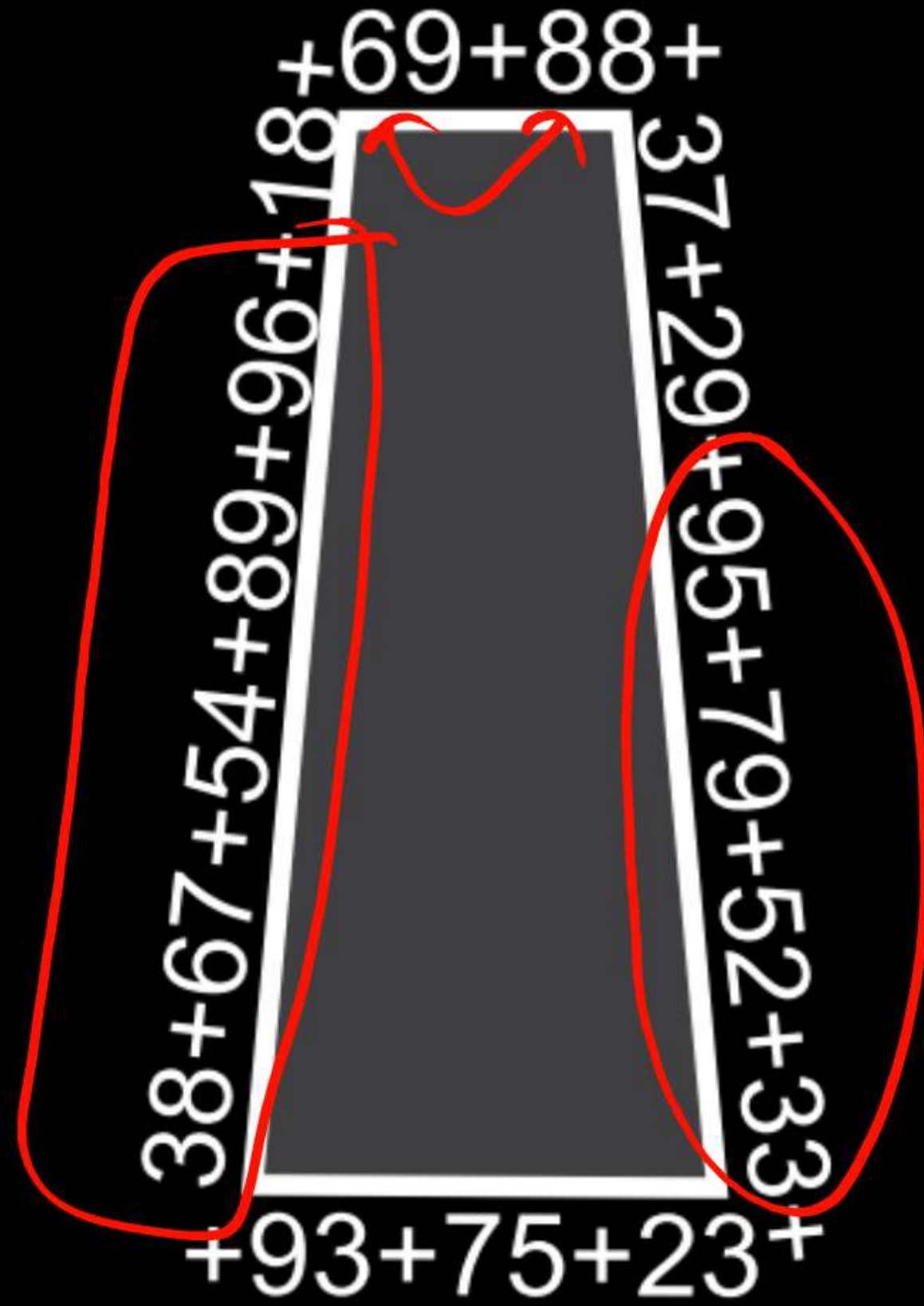
(c) 3444

(d) 2444

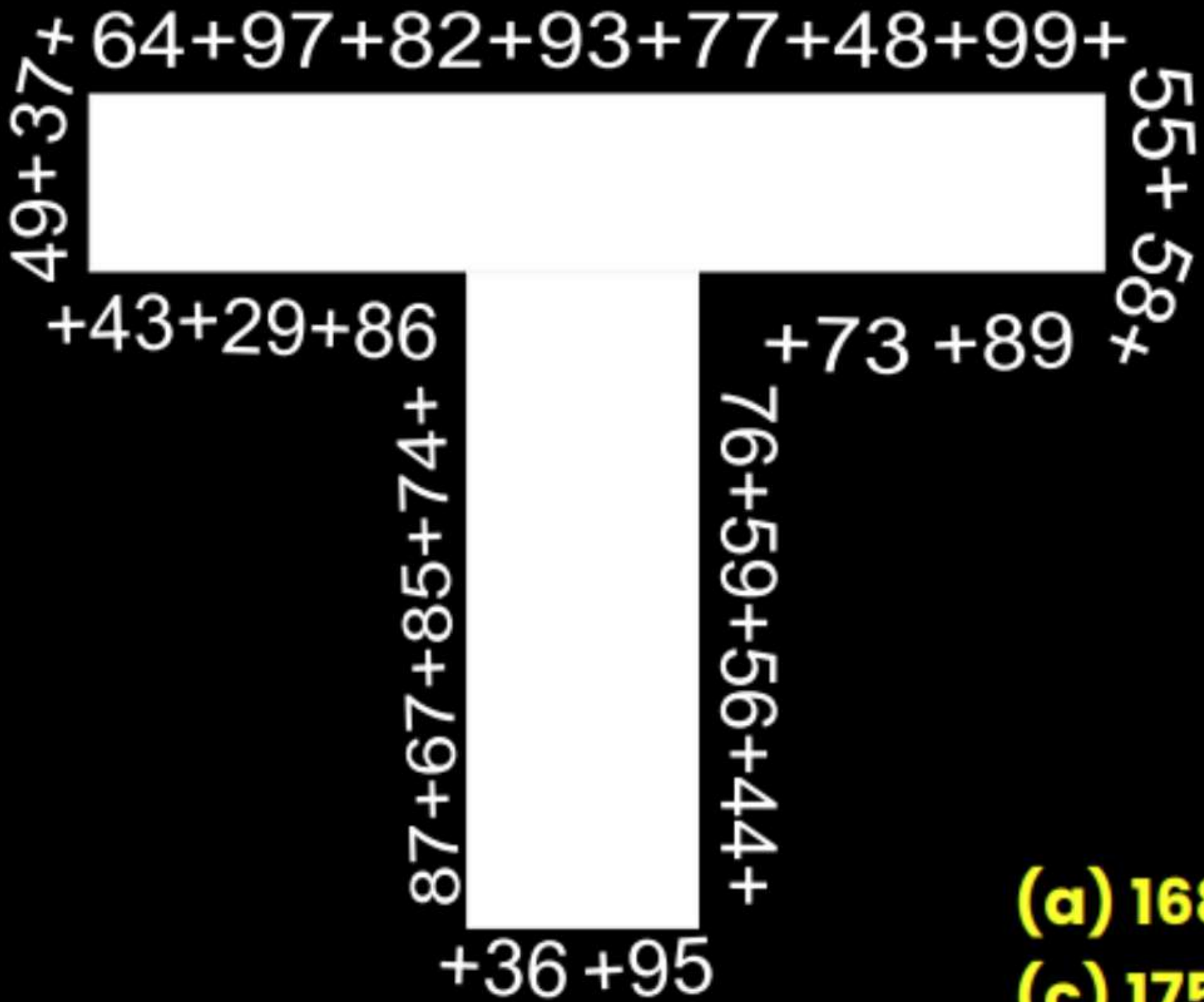
ADDITION (जोड़)

TYPE-9

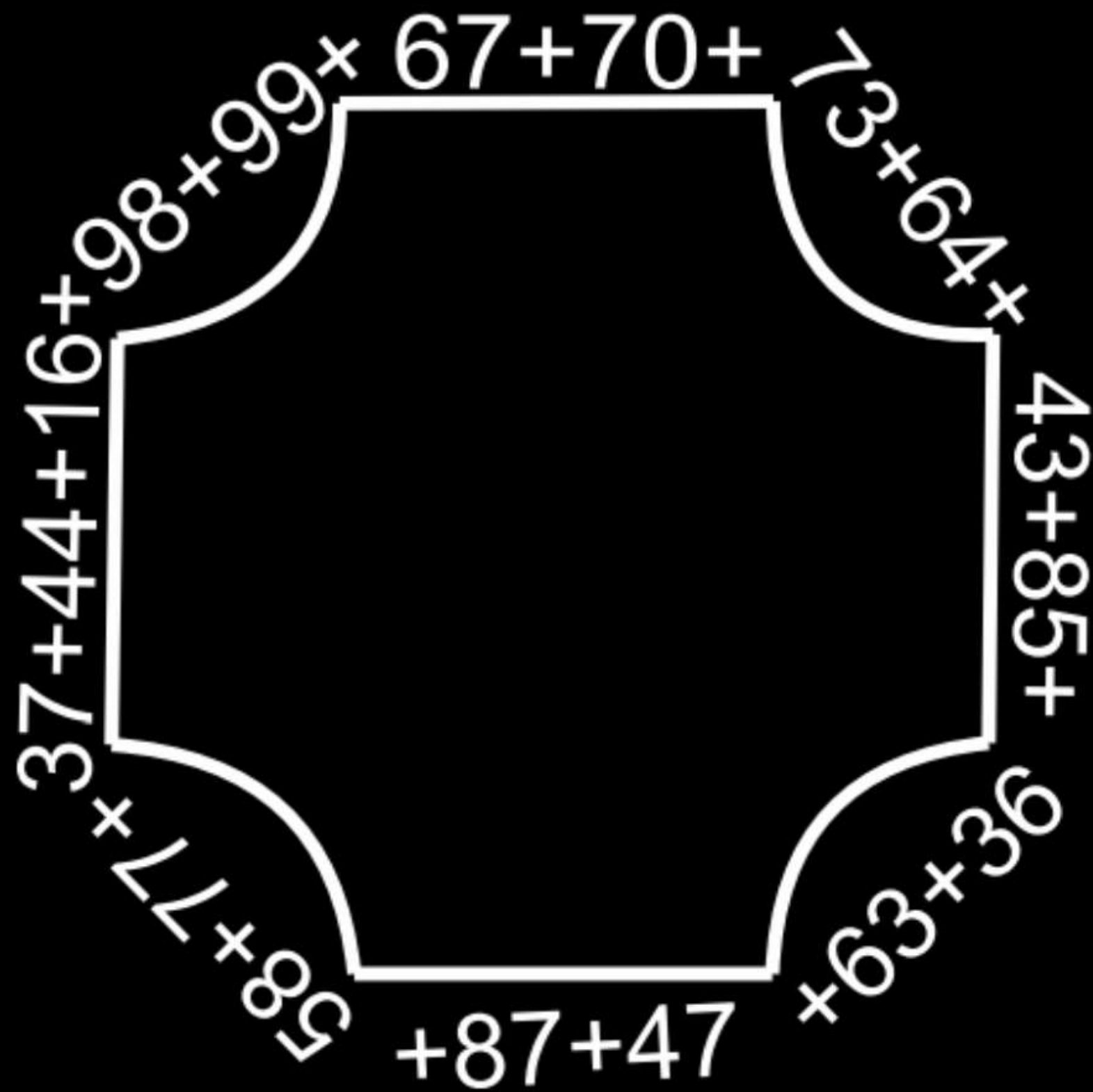




- (a) 1035 (b) 1145
(c) 1075 (d) 1026



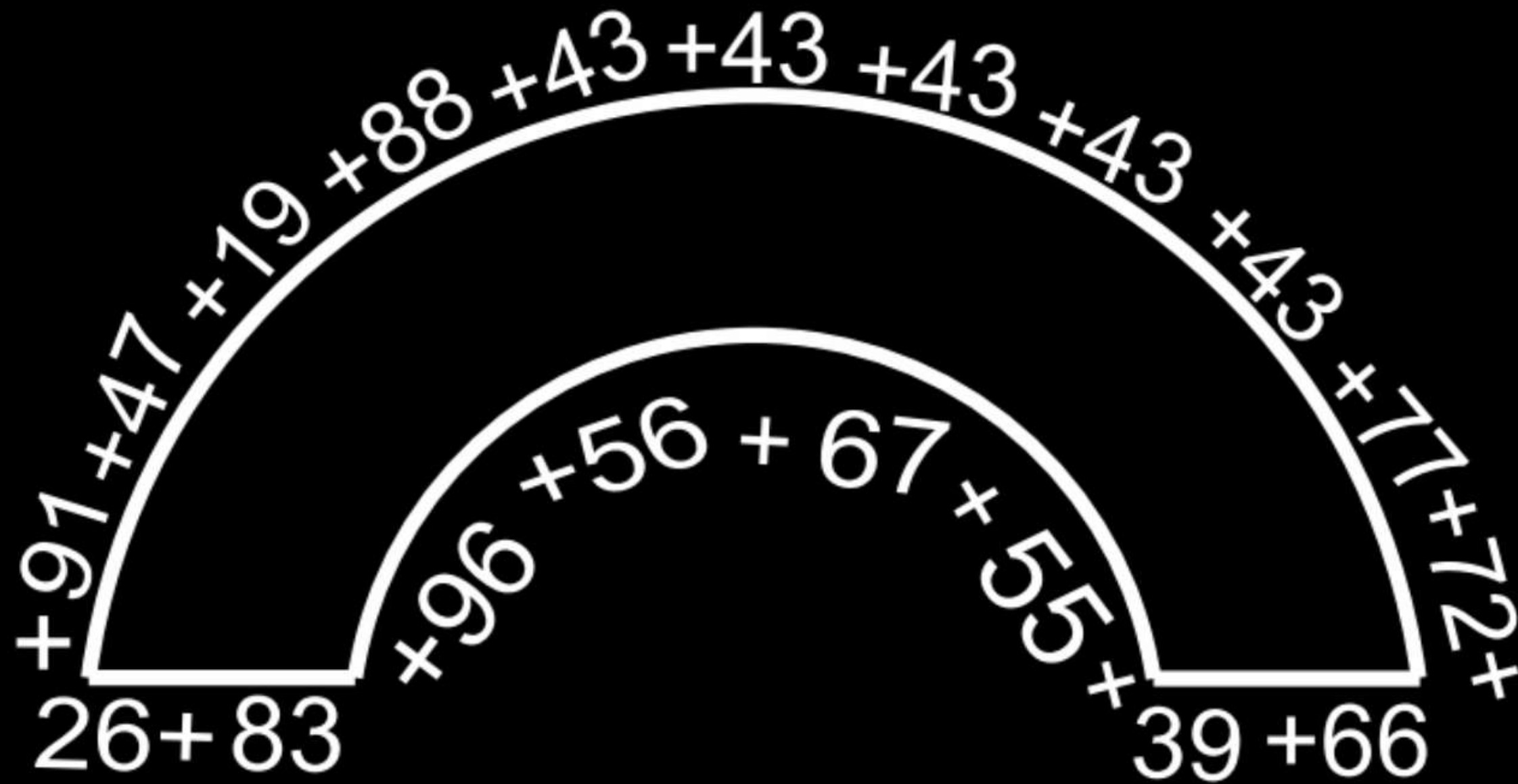
- (a) 1685 (b) 1791
 (c) 1758 (d) 1885



- (a) 1064** **(b) 1086**
(c) 1164 **(d) 1196**

$$\begin{array}{c}
 52+97+67+53+88+43+52+70+99+ \\
 95+38+49+27+89+ \\
 +77+83+33+72+57+23
 \end{array}$$

- (a) 1165 (b) 1264
 (c) 1284 (d) 1168



- (a) 1097 (b) 1198
(c) 1087 (d) 1077

Advance Calculation

Chapter-1

M-F

Diwali off

30 Dec 9 AM

30-3

FM Extra Classes

Square, Square Root, Cube & Cube Root (वर्ग, वर्गमूल, घन एवं घनमूल)

- Square (वर्ग) of any number (Universal Method) ✓
- Decimal Number का Square (दशमलव संख्या का वर्ग) ✓
- Base 100 के साथ Square (वर्ग) ✓
- Base 50 के साथ Square (वर्ग) ✓
- $99^2, 999^2, 9999^2, \dots$ ✓
- Cube (घन) of any number (Universal Method) ✓
- Decimal Number का Cube (दशमलव संख्या का घन) ✓
- Accurate Square Root (सटीक वर्गमूल) ✓
- Approximate Square Root (लगभग वर्गमूल) ✓
- Decimal Number का Square Root (दशमलव संख्या का वर्गमूल) ✓
- Accurate Cube Root (सटीक घनमूल) ✓
- Approximate Cube Root (लगभग घनमूल) ✓
- Decimal Number का Cube Root (दशमलव संख्या का घनमूल) ✓
- Square Calculation का Smart तरीका ✓
- Special Properties of Square ✓
- Special Properties of Cube ✓
- Some Interesting Patterns ✓

(9) Approximate Square Root (लगभग वर्गमूल)

Formula method

- **Approximate Square Root (लगभग वर्गमूल)**

Formula method

Concept $\rightarrow$ Yes/No

$$\sqrt{x} = \frac{x+y}{2\sqrt{y}}, y = \text{nearest perfect square to } x$$

$$\begin{aligned}\sqrt{10} &= \frac{10+9}{2 \times 3} \\ &= \frac{19}{6} = 3\frac{1}{6} = 3.166\dots\end{aligned}$$

$$\sqrt{7} = \frac{7+4}{2 \times 2} = \frac{11}{4} \approx 2.75$$

$$\sqrt{5} = \frac{5+4}{2 \times 2} = \frac{9}{4} \approx 2.25$$

- **Approximate Square Root (लगभग वर्गमूल)**

Formula method

$$\sqrt{18}$$

$$\frac{18+16}{2 \times 4} = \frac{34}{8} = \frac{17}{4} \approx 4\frac{1}{4} \approx 4.25$$

- Approximate Square Root (लगभग वर्गमूल)

Formula method

$$\sqrt{27}$$

$$\frac{27+25}{10} \approx 5.2$$

- **Approximate Square Root (लगभग वर्गमूल)**

Formula method

$$\sqrt{68}$$

$$\frac{68+64}{16} = \frac{132}{16} \approx 8.25$$

- Approximate Square Root (लगभग वर्गमूल)

Formula method

$$\sqrt{204}$$

$$\frac{204 + 196}{28} = \frac{400}{287} \approx 14.28$$

- **Approximate Square Root (लगभग वर्गमूल)**

Formula method

$$\sqrt{578}$$

$$\frac{578 + 576}{48} = \frac{1154}{48} = \frac{577}{24} \approx 24 \frac{1}{24} \approx 24.04$$

$$\frac{1}{24} \approx 4\% = 0.04$$

सिद्धांत Decimal

$x^2 \Rightarrow$ Double $x^3 \Rightarrow$ Triple
 $x^{1/2} \Rightarrow$ Half $x^{1/3} \Rightarrow$ One third का

(10) Decimal Number का Square Root (दशमलव संख्या का वर्गमूल) 1 का रिश्ता Accurate

3 point Decimal

$$\sqrt{0.004489} = 0.067 \text{ Ans}$$

$$\begin{array}{r} \sqrt{4489} \\ 67 \end{array} \begin{array}{l} \times \\ \checkmark \end{array}$$

62 72 3087

(67)

- Decimal Number का Square Root (दशमलव संख्या का वर्गमूल)

$$\sqrt{0.3136} = \underline{.56}$$

(Note: The image shows a handwritten orange bracket under the decimal part .3136 with the fraction 4/6 written below it, indicating a simplification step in the manual calculation.)

- Decimal Number का Square Root (दशमलव संख्या का वर्गमूल)

$$\sqrt{0.6889} = 0.83$$

Handwritten annotations: A bracket under 0.6889 with an arrow pointing to $3/7$ below it. A checkmark is drawn next to the result 0.83.

Approx Decimal Square Root

Approx

- Decimal Number का Square Root (दशमलव संख्या का वर्गमूल)

$$\sqrt{1.72} = 1.3$$

↓

$$13.1$$

↓

$$1.31$$

$$\sqrt{172} = \frac{172+169}{26}$$
$$= \frac{341}{26} = 13$$

$$\sqrt{1.98 \times 10^2} = 1.41 \text{ Ans}$$

$$\sqrt{198} \approx 14.1 \div 10$$

$$\begin{array}{l} 198 \\ 14^2 \end{array} \quad \begin{array}{l} 15^2 \end{array}$$

- **Decimal Number का Square Root (दशमलव संख्या का वर्गमूल)**

$$\sqrt{1.98}$$

Rough Method

$$\sqrt{3.4}$$



$$\underline{\underline{1.84}}$$

$$\begin{array}{r} \sqrt{3.40} = 1.84 \\ \begin{array}{l} 324 \swarrow \quad \searrow 361 \\ 182 \quad \quad 192 \end{array} \end{array}$$

(11) Accurate Cube Root (सटीक घनमूल)

$$\sqrt[3]{x}$$

- **Accurate Cube Root (सटीक घनमूल)**

$$\sqrt[3]{12167} = 23$$

इससे दोटा
निरूपण। Cube

2

3

7^3

सबसे Easy

- **Accurate Cube Root (सटीक घनमूल)**

$$\sqrt[3]{79507}$$



- Accurate Cube Root (सटीक घनमूल)

$$\sqrt[3]{19683}$$

27

(12) Approximate Cube Root (लगभग घनमूल)

$$\sqrt[3]{x} = \text{Nearest Cube Root} \pm \frac{(\text{जितना } \pm \text{ है}) \times \text{Nearest Cube Root}}{3 \times \text{Nearest Cube}}$$

$$\begin{aligned} \sqrt[3]{235} &= 6 + \frac{19 \times 6}{3 \times 216} \\ &= 6 + \frac{19}{108} = 6.17 \checkmark \end{aligned}$$

- **Approximate Cube Root (लगभग घनमूल)**

$$\sqrt[3]{235}$$

512

$$\begin{aligned}\sqrt[3]{500} &= 8 - \frac{\overset{3}{\cancel{12}} \times \cancel{8}}{\underset{\substack{3 \times \cancel{512} \\ 64 \times 16}}{\cancel{3 \times 512}}} \\ &= 8 - 0.0625 \\ &= 7.94\end{aligned}$$

- **Approximate Cube Root (लगभग घनमूल)**

$$\sqrt[3]{713}$$

$$9^3 = 729$$

$$9 - \frac{16 \times 9^3}{3 \times 729}$$
$$243$$

$$9 - \frac{16}{243}$$
$$15$$
$$9 - 0.06$$

$$\approx 8.94$$

- **Approximate Cube Root (लगभग घनमूल)**

$$\sqrt[3]{743}$$

$$3 \overline{)1850}$$

(13) Decimal Number का Cube Root (दशमलव संख्या का घनमूल)

- Decimal Number का Cube Root (दशमलव संख्या का घनमूल)

$$\sqrt[3]{0.013824}$$

$\frac{1}{3}$ का रिश्ता
 $6 \times \frac{1}{3} = 2$

Accurate

$$0.24$$

- Decimal Number का Cube Root (दशमलव संख्या का घनमूल)

$$\sqrt[3]{0.039304}$$

$$.34$$

Pen free
(mo)

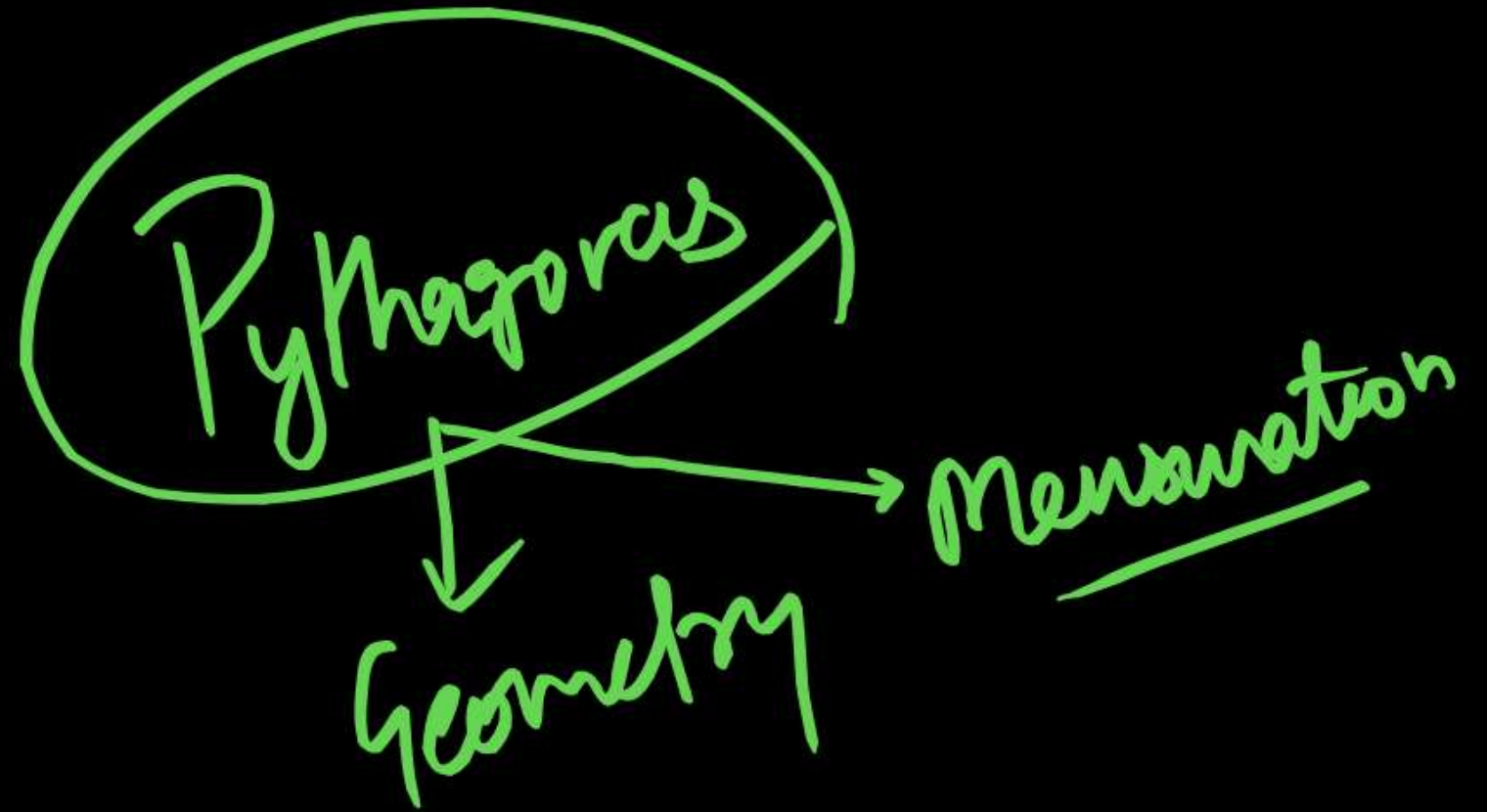
- Decimal Number का Cube Root (दशमलव संख्या का घनमूल)

$$\sqrt[3]{0.046656}$$

$$.36$$

(14) Square Calculation का Smart तरीका

$$x^2 - y^2 = (x+y)(x-y)$$



- Square Calculation का Smart तरीका

$$\begin{aligned} 36^2 - 32^2 &= (36+32)(36-32) \\ &= 68 \times 4 \\ &= 272 \end{aligned}$$

- **Square Calculation का Smart तरीका**

$$58^2 - 47^2$$

$$11 \times 105$$

$$11 \times (100 + 5)$$

$$\underline{1155}$$

- Square Calculation का Smart तरीका

$$116^2 - 109^2$$

$$225 \times 7 = 1575$$

(15) Special Properties of Square

• Special Properties of Square

(a) Formation of Square

$$1^2 = 1$$

$$2^2 = 1^2 + 1 + 2$$

$$3^2 = 2^2 + 2 + 3$$

$$4^2 = 3^2 + 3 + 4$$

⋮

$$n^2 = (n-1)^2 + (n-1) + n$$

• Special Properties of Square

(b) Square of a natural number is equal to sum of first n odd natural numbers

$$1^2 = 1 \quad \checkmark$$

$$2^2 = 1 + 3$$

$$3^2 = 1 + 3 + 5$$

$$4^2 = 1 + 3 + 5 + 7$$

$$5^2 = 1 + 3 + 5 + 7 + 9$$

$$\checkmark \quad n^2 = 1 + 3 + 5 + \dots + (2n-1)$$

$$n^2 = \text{Sum of } n \text{ odd no.}$$

• Special Properties of Square

Imp.

$$\textcircled{C} \quad 1 + 2 + 1 = 2^2 \quad \checkmark$$

$$1 + 2 + 3 + 2 + 1 = 3^2 \quad \checkmark$$

$$1 + 2 + 3 + 4 + 3 + 2 + 1 = 4^2 \quad \checkmark$$

$$1 + 2 + 3 + 4 + 5 + 4 + 3 + 2 + 1 = 5^2 \quad \checkmark$$

पहले सीढ़ी
फिर ऊँची

$$1 + 2 + \dots + 105 + 104 + 103 + \dots + 1 = 105^2$$

(16) Special Properties of Cube

$$\hookrightarrow (\text{Even})^3 = \text{Even}$$

$$\hookrightarrow (\text{Odd})^3 = \text{Odd}$$

$$\hookrightarrow 1^3 + 2^3 + \dots + n^3 = (1 + 2 + 3 + \dots + n)^2 \quad \times$$

$$\begin{aligned} \hookrightarrow (\dots 1)^3 &= \dots 1 \\ (\dots 4)^3 &= \dots 4 \end{aligned}$$

$$(\dots 5)^3 = \dots 5$$

$$(\dots 6)^3 = \dots 6$$

$$(\dots 9)^3 = \dots 9$$

$$1^3 \rightarrow 1$$

$$2^3 \rightarrow 8$$

$$3^3 \rightarrow 27$$

$$4^3 \rightarrow 64$$

$$5^3 \rightarrow 125$$

$$6^3 \rightarrow 216$$

$$7^3 \rightarrow 343$$

$$8^3 \rightarrow 512$$

$$9^3 \rightarrow 729$$

(17) Some Interesting Patterns

1	$1^3 = 1$	1
2	$2^3 = 8$	3 + 5
3	$3^3 = 27$	7 + 9 + 11
4	$4^3 = 64$	13 + 15 + 17 + 19
5	$5^3 = 125$	21 + 23 + 25 + 27 + 29
6	$6^3 = 216$	31 + 33 + 35 + 37 + 39 + 41