Square (वर्ग)

$1^2=1$
$2^2=4$
$3^2=9$
$4^2=16$
$5^2=25$
$6^2=36$
$7^2=49$
$8^2=64$
$9^2=81$
$10^2=100$

$11^2=121$
$12^2=144$
$13^2=169$
$14^2=196$
$15^2=225$
$16^2=256$
$17^2=289$
$18^2=324$
$19^2=361$
$20^2=400$

$21^2=441$
$22^2=484$
$23^2=529$
$24^2=576$
$25^2=625$
$26^2=676$
$27^2=729$
$28^2=784$
$29^2=741$
$30^2=900$

$31^2=961$
$32^2=1024$
$33^2=1089$
$34^2=1156$
$35^2=1225$

Cube (घन)

$1^3=1$

$2^3=8$

$3^3=27$

$4^3=64$

$5^3=125$

$6^3=216$

$7^3=343$

$8^3=512$

$9^3=729$

$10^3=1000$

$11^3=1331$

$12^3=1728$

$13^3=2197$

$14^3=2744$

$15^3=3375$

$16^3=4096$

$17^3=4913$

$18^3=5832$

$19^3=6859$

$20^3=8000$

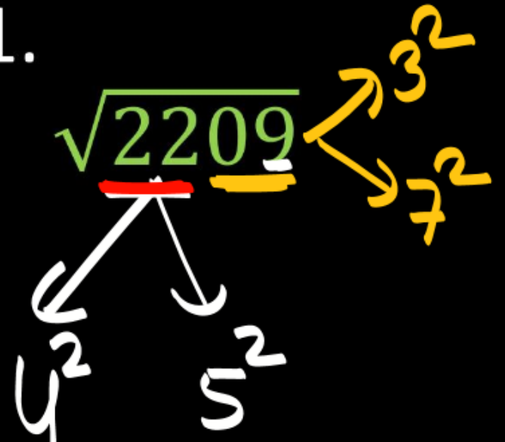
Square root (वर्गमूल):-

$\sqrt{25} = 5$

$\sqrt{64} = 8$

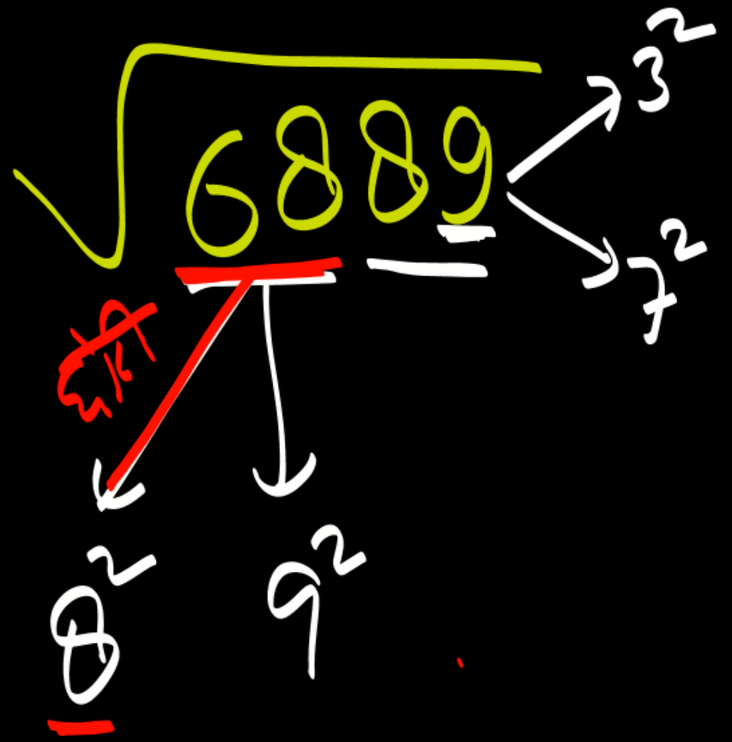
$\sqrt{100} = 10$

Q 1.

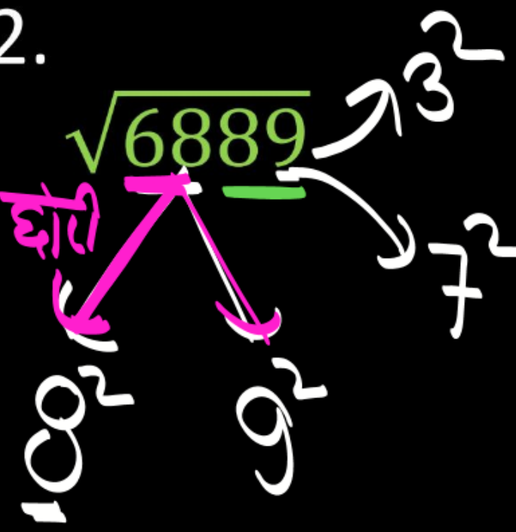


47

a) 47
b) 37
c) 48
d) 57



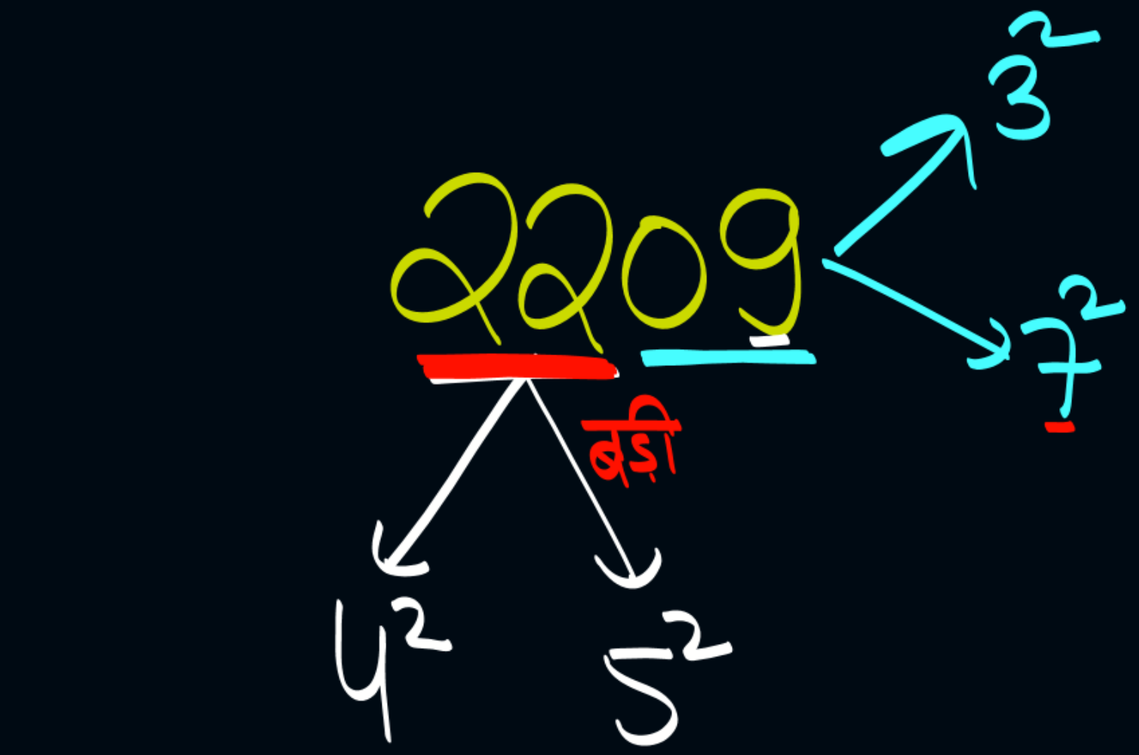
Q 2.



83

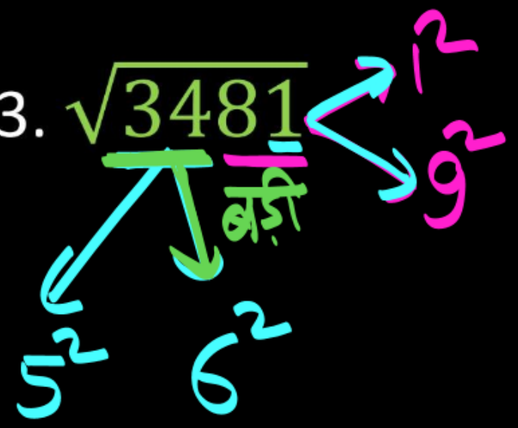
a) 83
b) 84
c) 93
d) 72

83



47

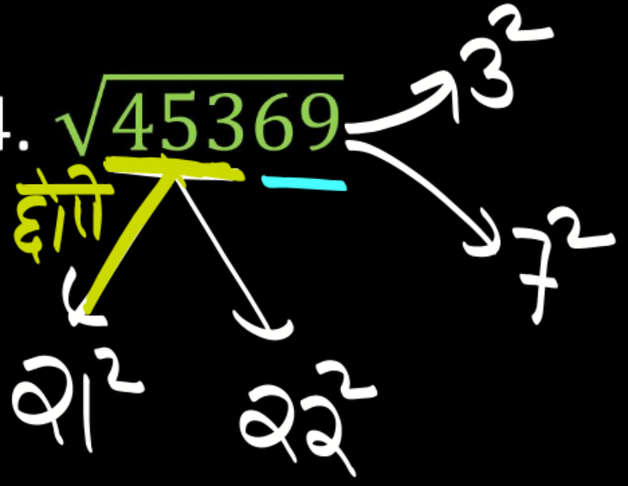
Q 3. $\sqrt{3481}$



59 ✓

a) 59
b) 79
c) 89
d) 49

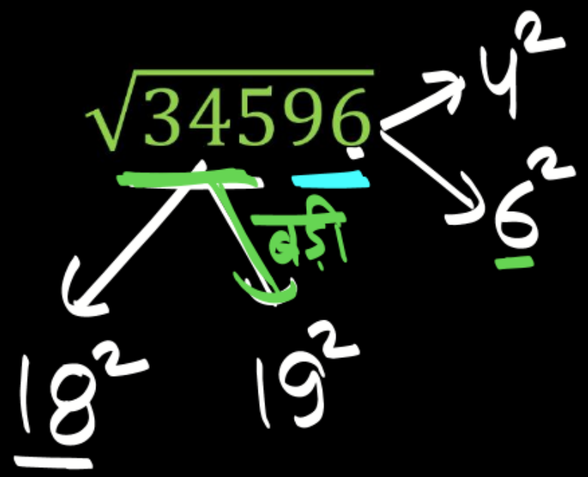
Q 4. $\sqrt{45369}$



213

a) 223
b) 213
c) 233
d) 222

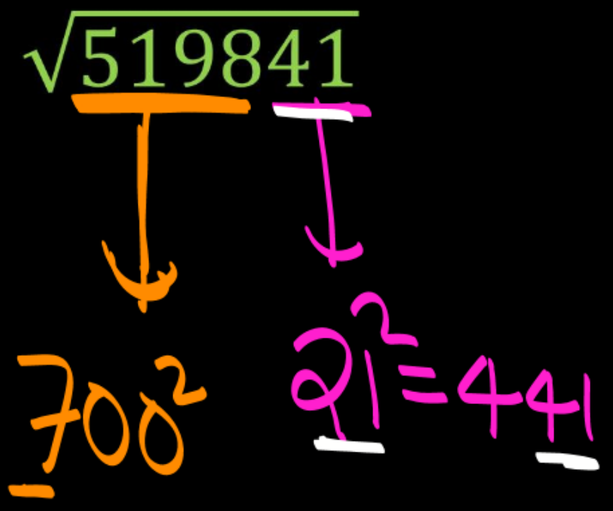
Q 5.



a) 186
b) 184
c) 189
d) 182

186

Q 6.



a) 721
b) 629
c) 631
d) 731

$\sqrt{25} = 5$

Approximate Square root

$\sqrt{13}$, $\sqrt{127}$, $\sqrt{10}$

Q 1.

$$\sqrt{10} = \sqrt{9+1} = 3 + \frac{1}{6} = 3.16$$

Q 2.

$$\sqrt{87} = \sqrt{81+6} = 9 + \frac{6}{18} = 9.3$$

$\times 2$

$$22 \overline{)170} (.7$$
$$154$$

Q 3.

$$\sqrt{138} = \sqrt{121+17} = 11 + \frac{17}{22} = 11.7$$

Q 4.

$\sqrt{1.54}$

$\sqrt{154} = \sqrt{144+10} = 12 + \frac{10^{5}}{24_{12}} = \frac{12 \cdot 4}{100} = 1 \cdot 24$

Q 5.

$\sqrt{531}$

Cube root (घनमूल)

Q 1.

$\sqrt[3]{531441}$ → ?

$8^3 - 9^3$

81

Q 2.

$\sqrt[3]{39304}$

Q 3.

$\sqrt[3]{636056}$

Q 4.

$\sqrt[3]{185193}$

$1^3 = 1$

$2^3 = 8$

$3^3 = 7$

$4^3 = 4$

$5^3 = 5$

$6^3 = 6$

$7^3 = 3$

$8^3 = 2$

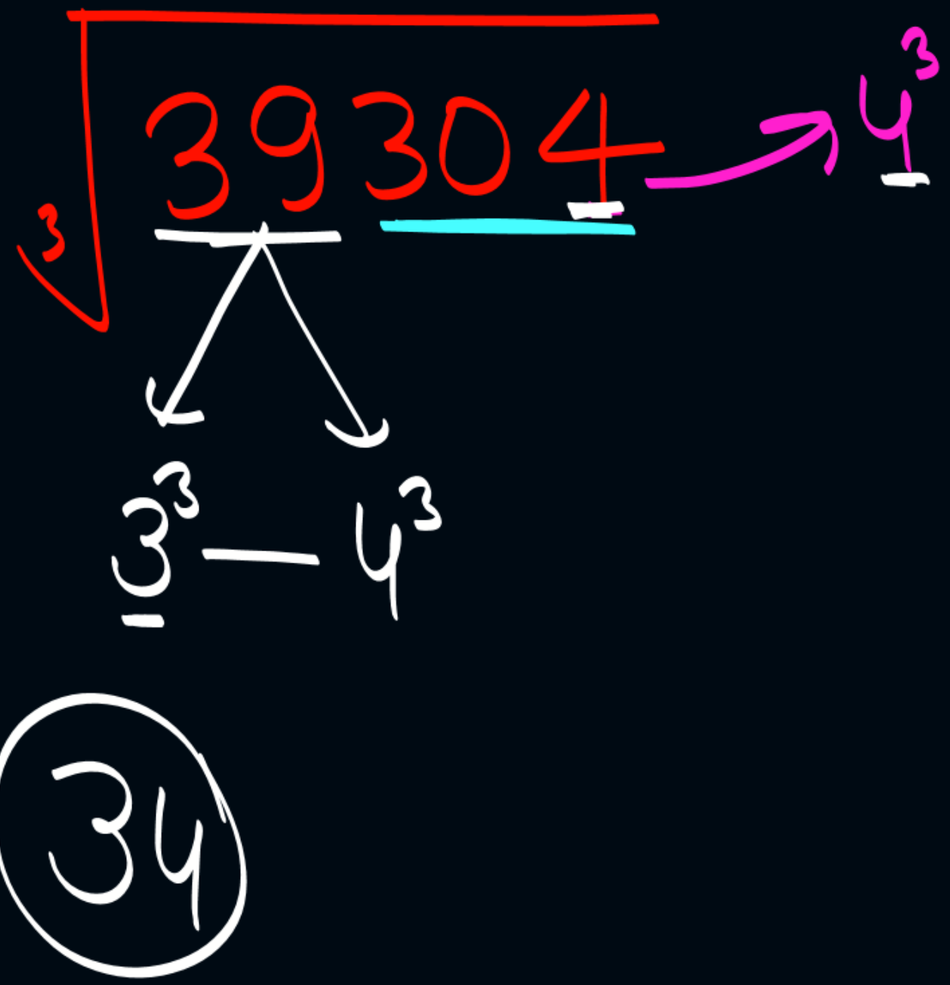
$9^3 = 9$

$6^3 = 216$

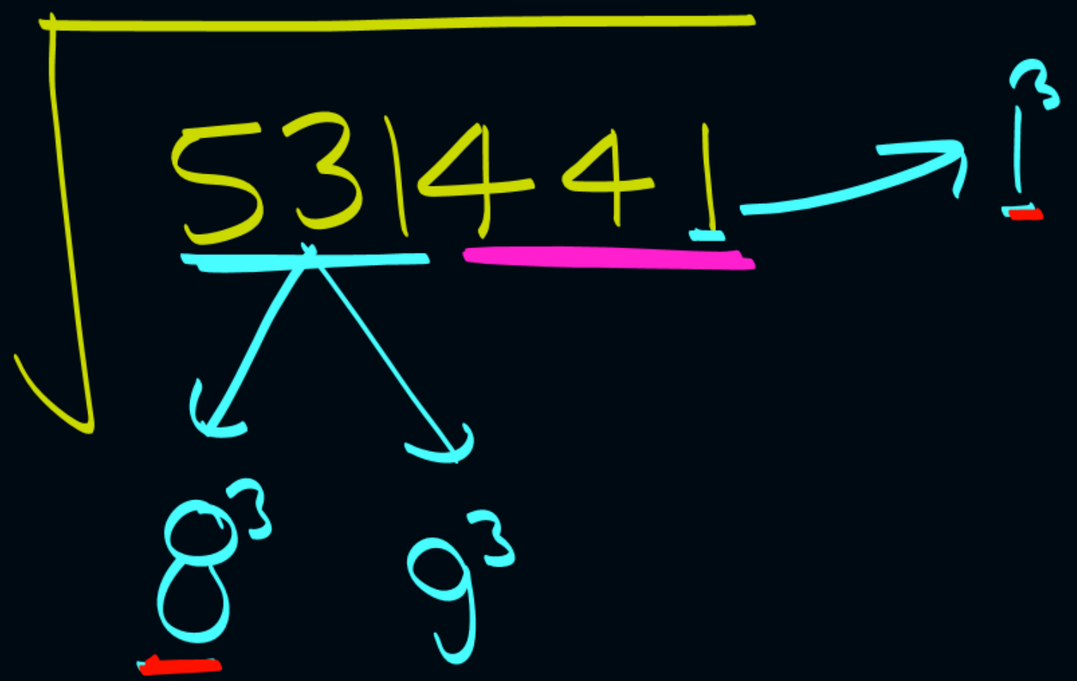
$\sqrt[3]{636056}$ → 6^3

$80^3 - 9^3$

86


$\sqrt[3]{39304}$
4^3
$-3^3 - 4^3$
34

81 A



Q 5.

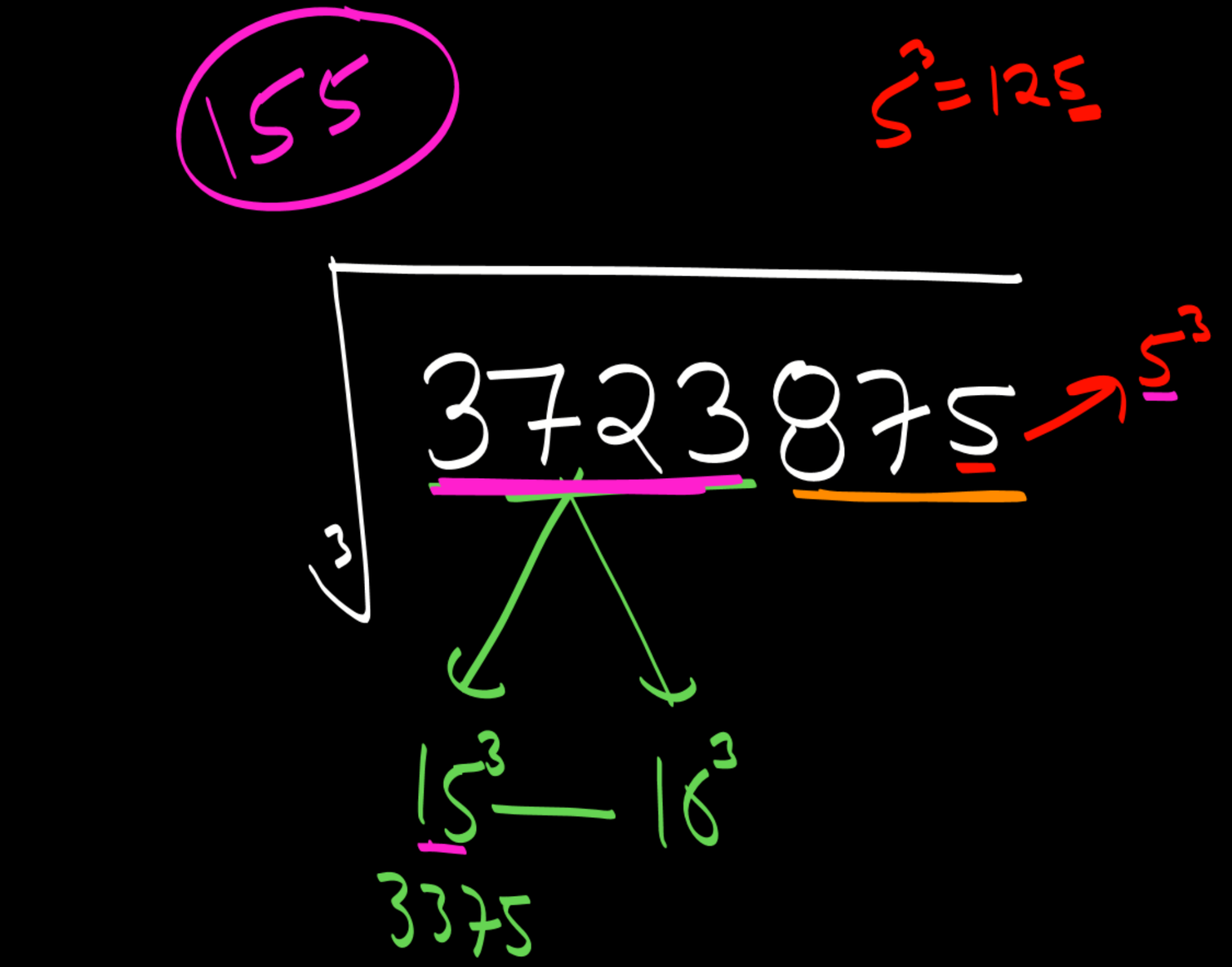
$\sqrt[3]{103823}$

Q 6.

$\sqrt[3]{3723875}$

Q 7.

$\sqrt[3]{2406104}$



$$\begin{array}{r} 251 \\ \times\ 323 \\ \hline 81073 \end{array}$$

Step I

Step II

Step III

Step IV

Step V

Trick 1.

दो लगातार संख्याओ की **multiplication** करना :

32X33 = 32x33

Sq

1024

+32

1056

50X51 =

Sq

2500

+50

2550

Trick 2. Split method: -

$512 \times 66 =$

$723 \times 55 =$

$68 \times 35 =$

$52 \times 85 =$

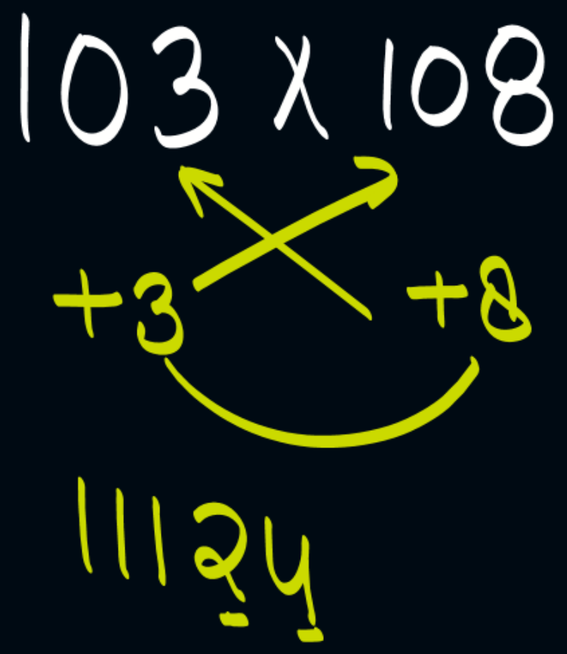
52×85

$52 \times (80 + 5)$

4160

$+ 260$

4420



Trick 3.

Multiplication when numbers closer to 100

99 × 97

97 × 94

103 ×108

102 ×103

$$103 \times 98$$

$$103 \times (100 - 2)$$

$$10300$$
$$-206$$
$$\overline{10094}$$

Trick 4.

दो संख्याओं की **multiplication** जो 200 के पास है।

208×2

203 ×205

41615

∴

198 ×212

(200-2)×212

42400
- 424
41976

∴

191x2

198 x193

3821 4

Trick 5.

Multiplication of 5, 25, 125,_____

$96 \times 5 =$

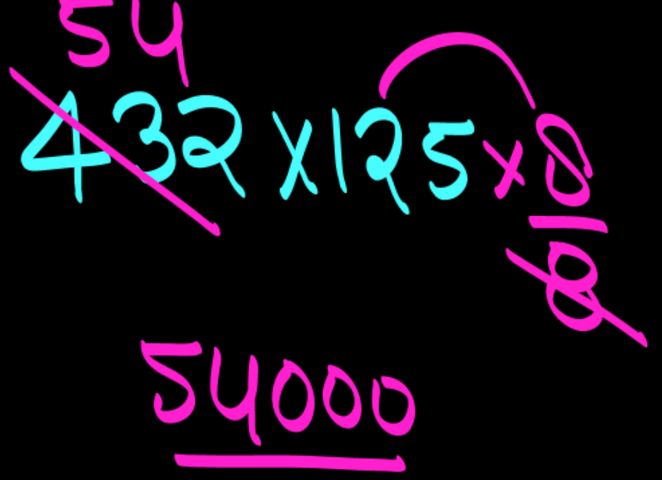
$572 \times 5 =$

$36 \times 25 =$

$973 \times 25 =$

$432 \times 125 =$

$521 \times 125 =$

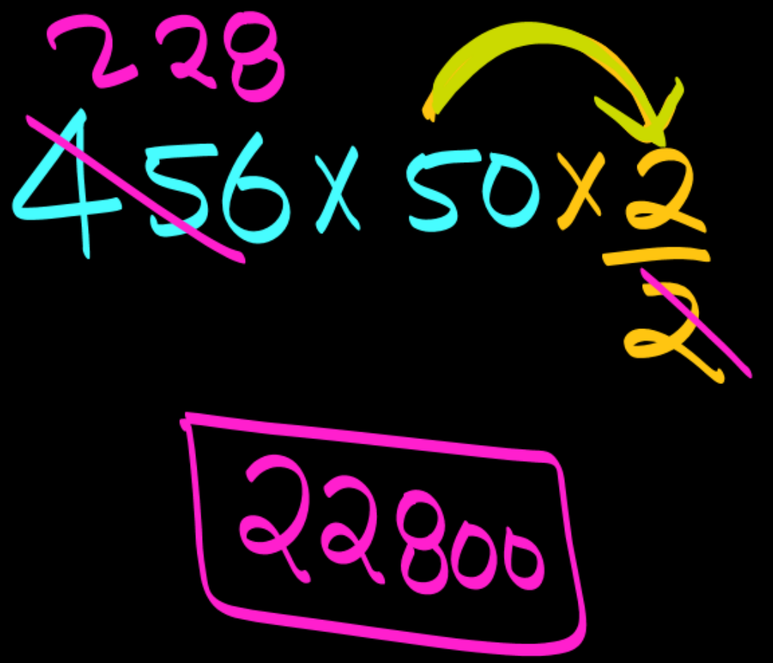


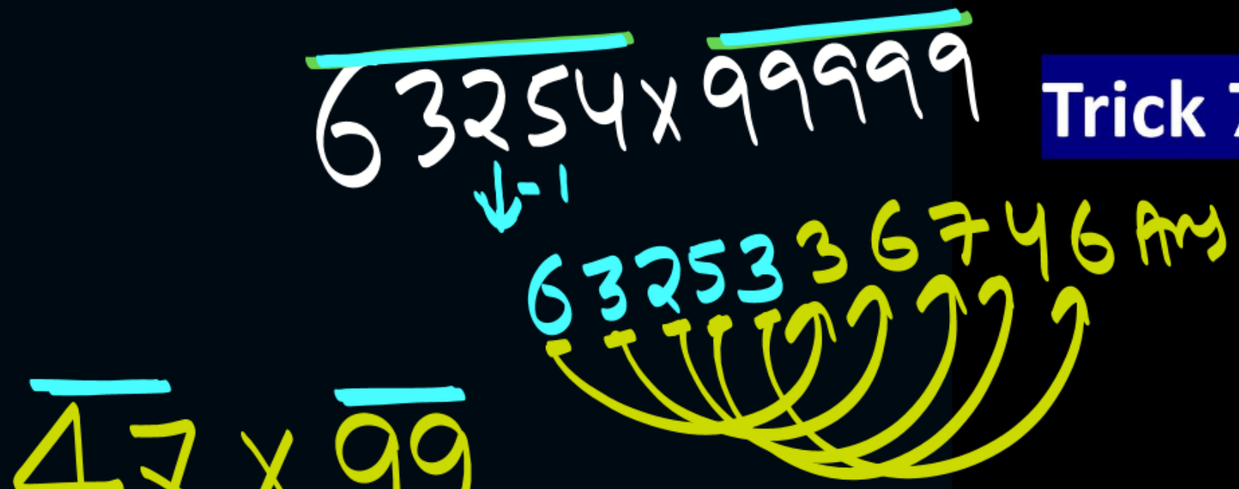
Trick 6.

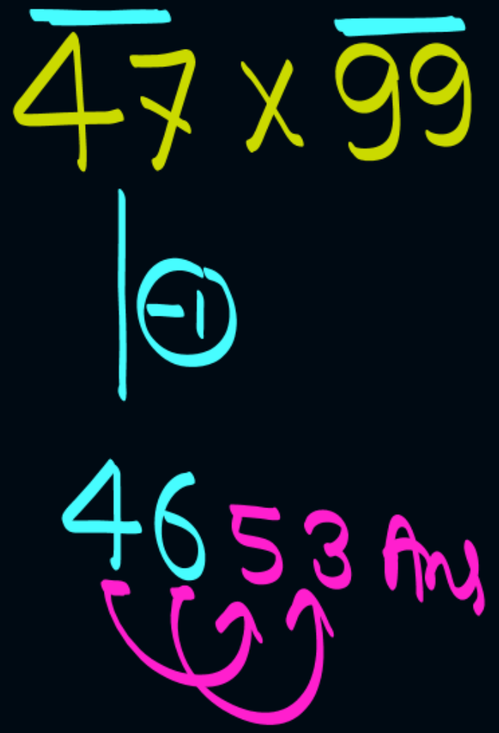
50 का special multiplication :-

456 ×50=

7804 ×50=







Trick 7.

9,99,999 ---------- से multiplication

$4 \times 9 =$

$47 \times 99 =$

$543 \times 999 =$

$476\frac{142}{999} \times 999$

Trick 8.

"जब 9 ज्यादा हो और दूसरी संख्या के अंक 9 की संख्या से कम हो "

$\overline{47} \times \overline{999}$

$47 \times (1000 - 1)$

47000

$-\ 47$

46953

4756×999

Trick 9.

✓ 34 × 101 =

$$34 \times (100 + 1)$$

$$\begin{array}{r} 3400 \\ +\ 34 \\ \hline 3434 \end{array}$$

✓ 24 × 1001 =

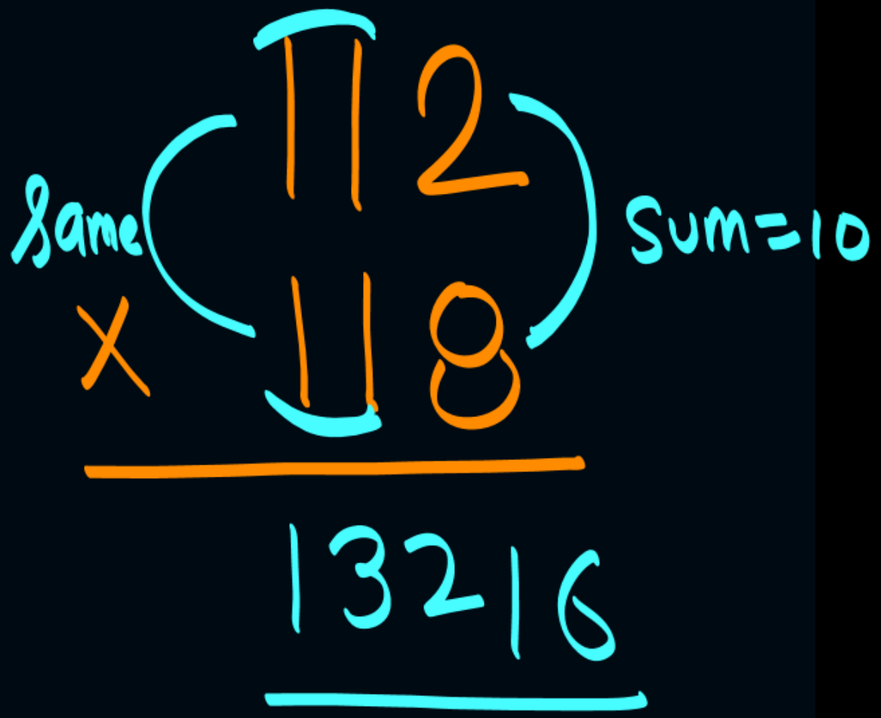
⇓

$$24 \times (1000 + 1)$$

$$\begin{array}{r} 24000 \\ +\ 24 \\ \hline 24024 \end{array}$$

Trick 10.

यदि आखिरी अंक (unitdigit) का योग 10 हो :-

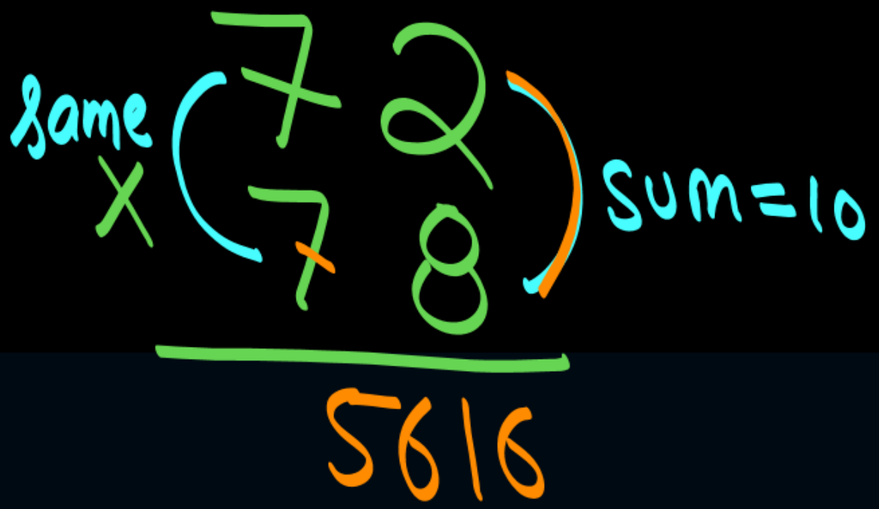


46×44

72×78

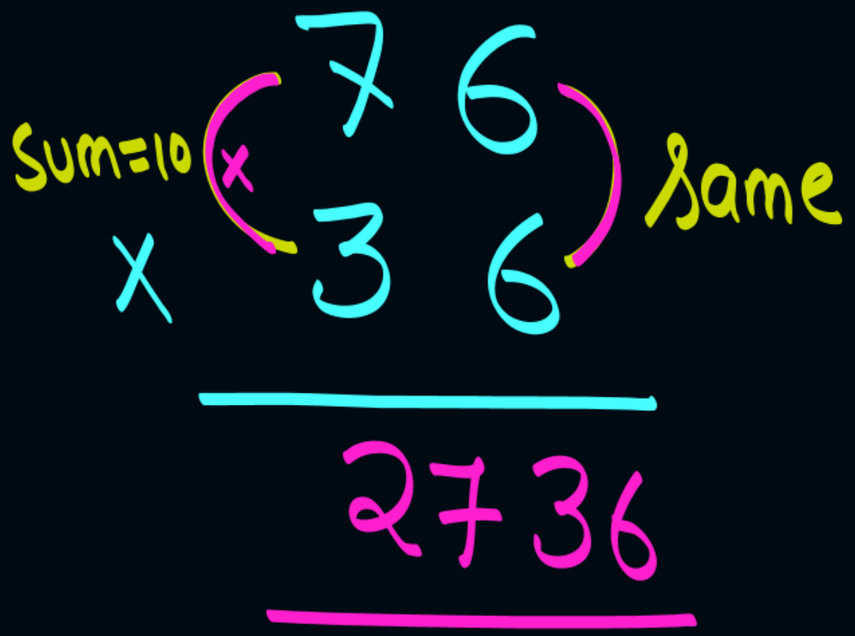
112
×118

106
×104



Trick 11.

"जब दोनो संख्याओं के 10^{th} का sum 10 हो तथा दोनो संख्याओं का unit digit same हो"

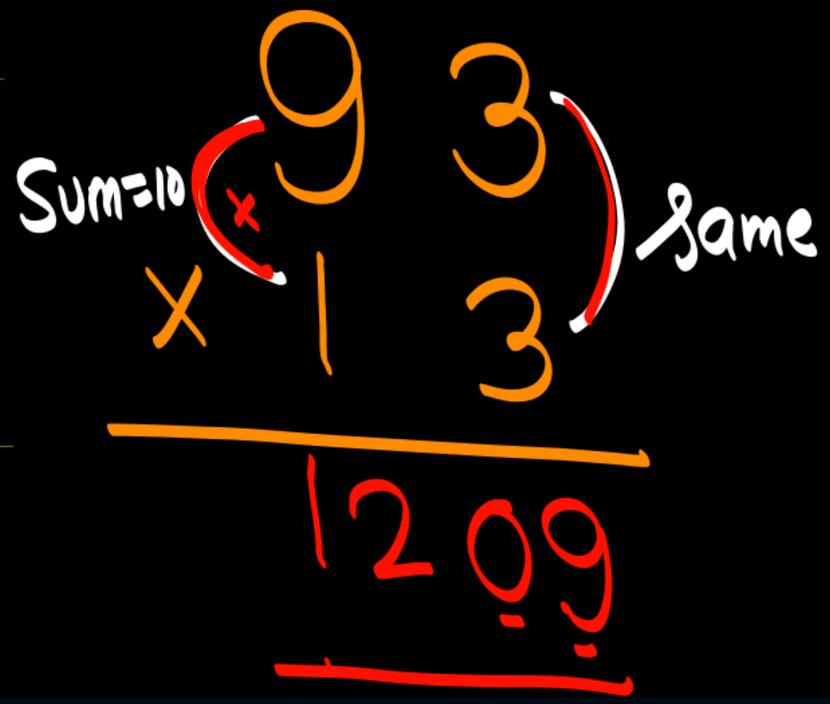


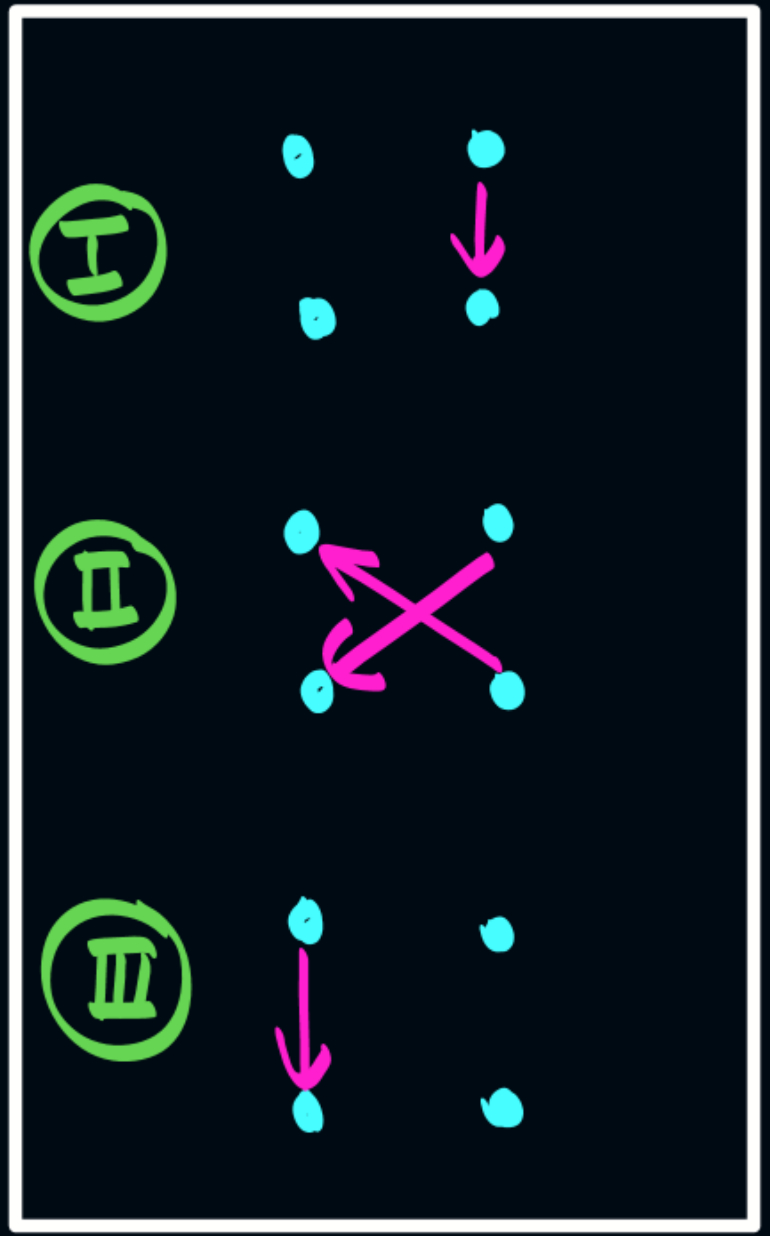
76
×36

87
×27

36
×76

93
×13

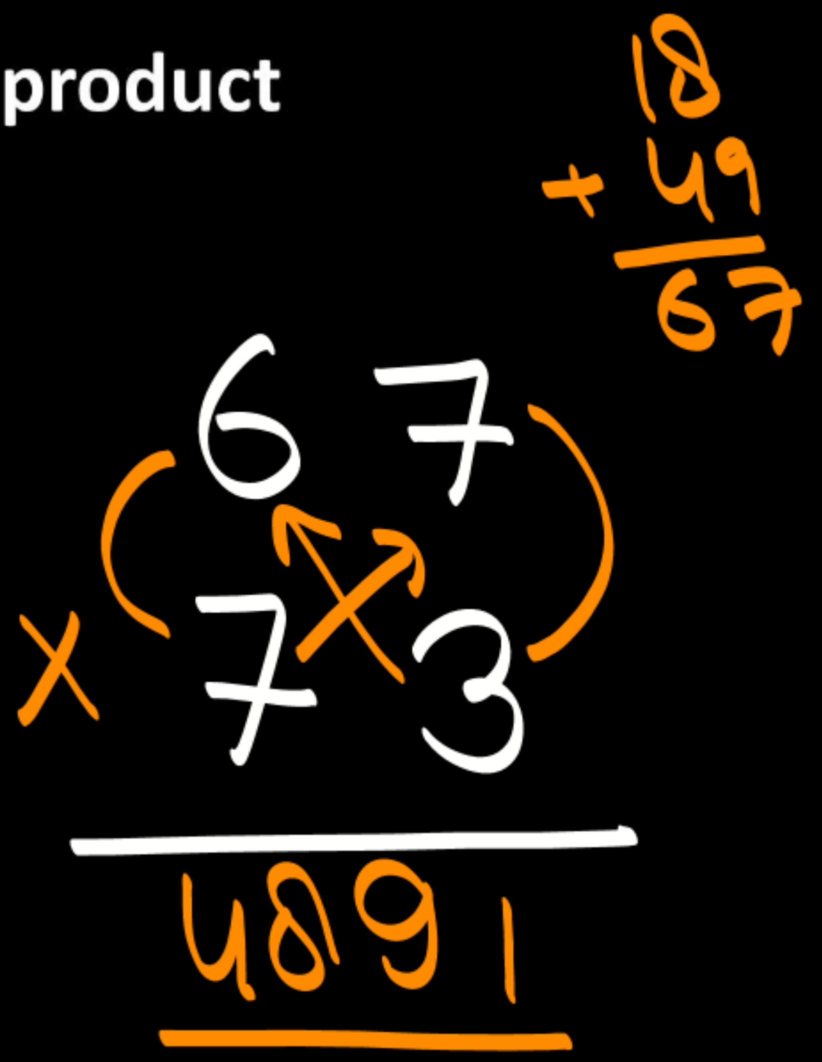




Trick 12.

Cross product

$$\begin{array}{r} 43 \\ \times 86 \\ \hline \end{array} \qquad \begin{array}{r} 67 \\ \times 73 \\ \hline \end{array}$$

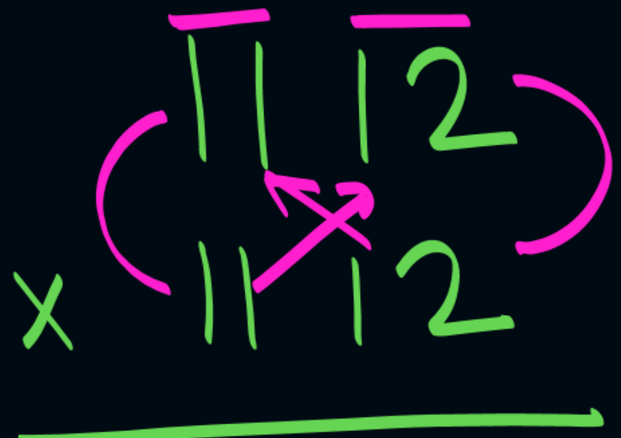


$$\begin{array}{r} 1012 \\ \times 1012 \\ \hline \end{array} \qquad \begin{array}{r} 1112 \\ \times 1112 \\ \hline \end{array}$$

$$\begin{array}{r} \overline{10}\ \overline{12} \\ \times\ 10\ 12 \\ \hline 102\ \underline{41}\ \underline{44} \\ \hline \end{array}$$

Two digit $\overline{}\ \overline{}$ → एक digit

$(2)\underline{41}$ (1)

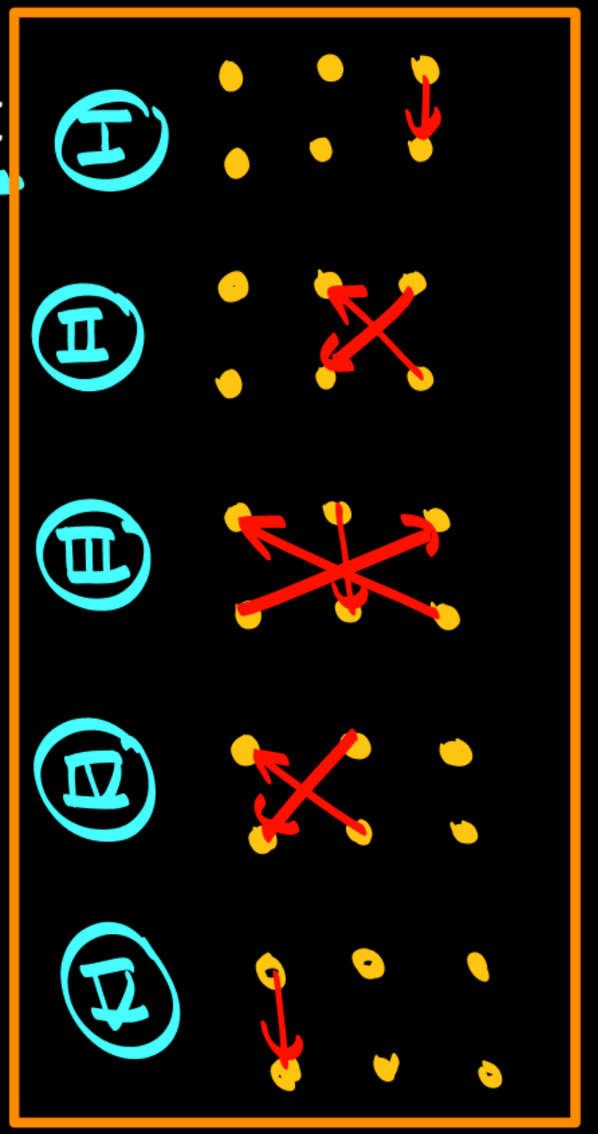

11 12
x
11 12
12365 44
2 1

Trick 13.

Three digit multiplication with three digit

$$\begin{array}{r} 132 \\ \times 214 \\ \hline \end{array} \qquad \begin{array}{r} 134 \\ \times 253 \\ \hline \end{array}$$

$$\begin{array}{r} 324 \\ \times 513 \\ \hline \end{array} \qquad \begin{array}{r} 325 \\ \times 413 \\ \hline \end{array}$$

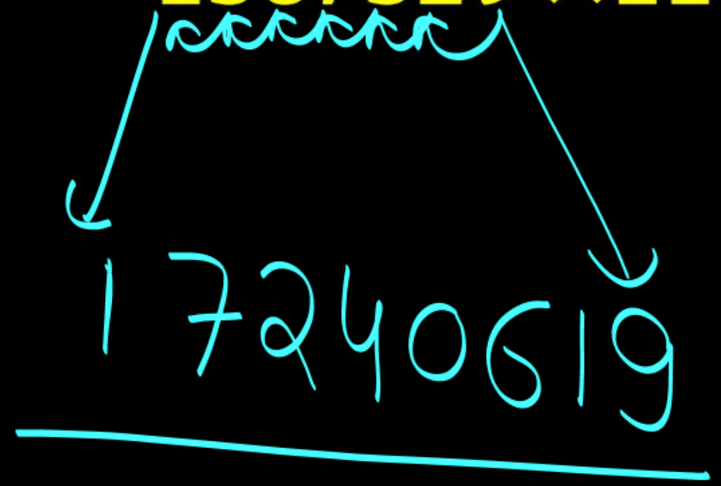


$$\begin{array}{r} 324 \\ \times\ 513 \\ \hline 166212 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1}\,{\scriptstyle 3}\,{\scriptstyle 2} \\ 132 \\ \times\ 214 \\ \hline 28248 \end{array}$$

137 ×11

1567329 ×11



Square (वर्ग)

1^2=

2^2=4

3^2=9

4^2=16

5^2=25

6^2=36

7^2=49

8^2=64

9^2=81

10^2=100

11^2=121

12^2=144

13^2=169

14^2=196

15^2=225

16^2=256

17^2=289

18^2=324

19^2=361

20^2=400

21^2=441

22^2=484

23^2=529

24^2=576

25^2=625

26^2=676

27^2=729

28^2=784

29^2=841

30^2=900

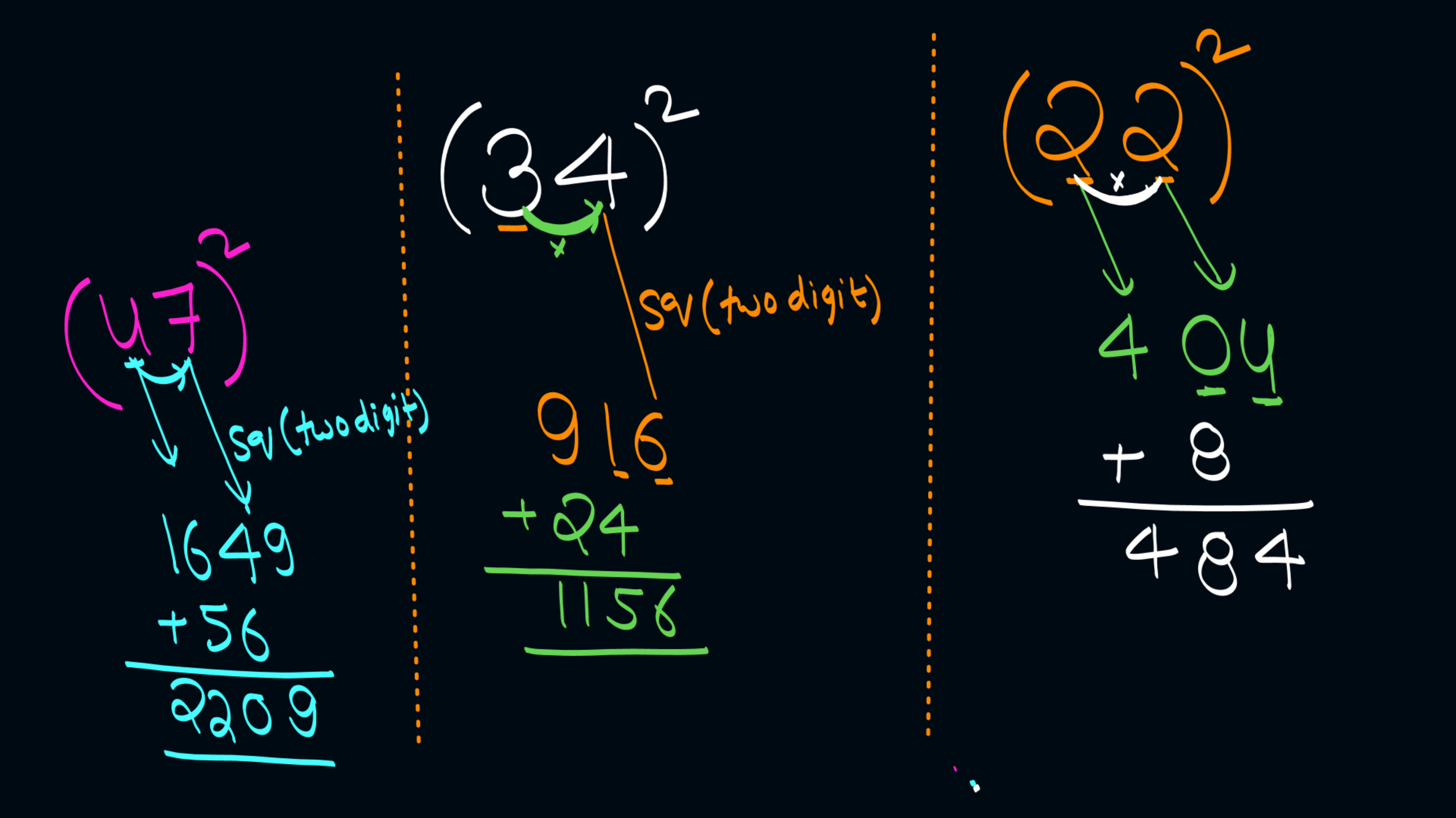
31^2=961

32^2=1024

33^2=1089

34^2=1156

35^2=1225


$(47)^2$
sq (two digit)
16 49
+56
2209
$(34)^2$
sq (two digit)
9 16
+24
1156
$(22)^2$
4 04
+8
484

Base: 100

$(92)^2$

-8

8464

$(98)^2$

-2

9604

$(102)^2$

+2

10404

$(112)^2$

+12

12544

①

Base : 200

$(204)^2$

208×2

+4

416 | 16

192×2

$(196)^2$

-4

384 | 16

Base: 300

322x3
966

$(311)^2$

+11

96721

①

276x3
829

$(288)^2$

-12

82944

①

$\frac{66}{2}$

#

$\times\frac{1}{2}$	$\times 1$	$\times\frac{3}{2}$	$\times 2$	$\times 3$
50	100	150	200	300

$(58)^2$

$+8$

3364

2×206

412

$(203)^2$

$+3$

41209

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

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

Square root (वर्गमूल):-