

LEVEL 5

LEARNING



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Numbers 1 to 1000
Addition & Subtraction

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Descending order

Explanation: Set of numbers are given, write from bigger number to smaller number in the given boxes.

Example:

258	749	581	178
749	581	258	178

Exercise 8

Write in descending order

1)

486	938	318	639

2)

777	111	555	999

3)

281	494	602	78

4)

300	900	400	500

5)

815	472	501	742



Addition of 3 digit tens

Explanation: To add 3 digit tens, add hundreds and tens place like 2 digit addition, and put zero in the units place.

Example: 260 + 170

Add 26 and 17, which is 43 and put 0 for units place, the answer is 430.

Exercise 18

Addition of 3 digit tens

1) $240 + 120 =$

2) $480 + 230 =$

3) $140 + 340 =$

4) $520 + 160 =$

5) $380 + 120 =$



Multiply by 2 using doubling

Explanation: Multiply by 2 is nothing but doubling once.

Example: 356×2

$$356 \times 2 = 356 + 356 = 712$$

Exercise 28

Multiply by 2 using doubling

1) $36 \times 2 =$

2) $73 \times 2 =$

3) $124 \times 2 =$

4) $240 \times 2 =$

5) $363 \times 2 =$



Subtract single digit from 3 digit number

Explanation: To subtract single digit from 3 digit number, put two imaginary 0s in front of the subtrahend and subtract like 3 digit subtraction or we can use splitting method.

Key word: Splitting in subtraction is to split the subtrahend into two numbers, so that one of the number must be equal to units of the 3-digit number.

Example: $143 - 7$

Units place of the subtrahend is greater than units place of the minuend, so use splitting method. Units place of the minuend is 3, so split 7 into 3 and 4. First subtract 3, $143 - 3 = 140$ and then subtract 4, $140 - 4 = 136$, which is the final answer.

$$187 - 4$$

We can take this as $187 - 004$, subtract hundreds, tens and units, the answer is 183

$$187 - 4 = 183$$

Exercise 38

Subtract single digit from 3 digit number

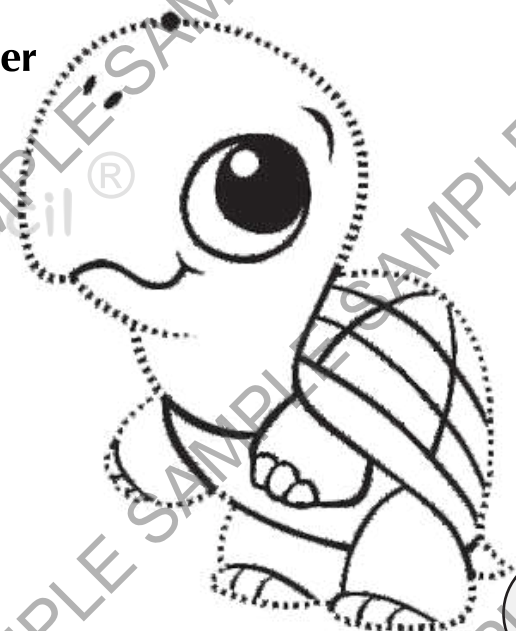
1) $148 - 5 =$

2) $131 - 3 =$

3) $186 - 4 =$

4) $114 - 3 =$

5) $142 - 8 =$





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LEVEL 6

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Multiply & Divide

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3 digit with single digit multiplication using moving multiplier

Explanation: To multiply 3 digit number with a single digit number, write multiplicand on the top and the single digit multiplier below multiplicand's units place.

First multiply with units place, write the answer below units place, if any carry occurs write the carry above tens place.

Move the multiplier to tens place, multiply with tens place, and add the carry if anything from the previous step. Write the answer below tens place. If carry occurs write the carry above the hundreds place.

Now move the multiplier to hundreds place, multiply with hundreds, add the carry if anything from the previous step and write the answer below hundreds place.

Example: 247×7

$$\begin{array}{r} 34 \\ 247 \\ 7 \times \times \\ \hline 1729 \\ \hline \end{array}$$

Exercise 8

Multiply using moving multiplier

1) 371×3	2) 723×4	3) 165×2
4) 407×8	5) 592×3	

Single digit division with remainder

Explanation: The first number is the dividend and the second number is the divisor. Check how many times the divisor fit into the dividend that is called quotient and remaining number is called remainder.

Example: $48 \div 5$

$$5 \times 9 = 45$$

There are nine 5s in 48, with excess 3 which is called remainder.

$$48 \div 5 = 9 \text{ R } 3$$

Exercise 18

Single digit division with remainder

1) $13 \div 2 =$

2) $20 \div 3 =$

3) $23 \div 4 =$

4) $29 \div 5 =$

5) $35 \div 6 =$



Find the missing digit in product

Explanation: Do vertically and crosswise multiplication to find the missing digit in the product.

Example: $51 \times 87 = 4 \square 37$

$$\begin{array}{r} \textcircled{4} \\ | 5 \quad 1 | \\ | 8 \quad 7 | \\ \hline 4 \quad 4 \quad 3 \quad 7 \\ \hline \end{array}$$

The missing digit is 4
 $51 \times 87 = 4437$

Exercise 28

Find the missing digit in product

1) $14 \times 2 = 28 \square$	2) $18 \times 17 = 3 \square 6$	3) $23 \times 91 = 20 \square 3$
4) $27 \times 76 = 205 \square$	5) $36 \times 42 = 1 \square 12$	

Divisibility check for 3 using digit sum

Explanation: To check the divisibility for 3, find the digit sum. If the digit sum is more than a single digit number, add it again till we get the digit sum in single digit. If the digit sum is 3, 6 or 9, the number is divisible by 3, otherwise it is not divisible by 3.

Example: 57

Digit sum of 57 = $5+7 = 12$

Digit sum of 12 = $1+2 = 3$

The digit sum is 3, so 57 is divisible by 3.

Exercise 38

Divisibility check for 3 using digit sum (write Yes or No)

1) 7

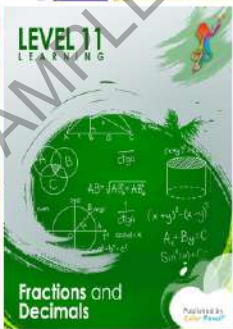
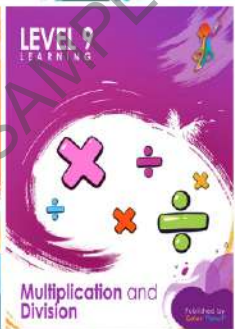
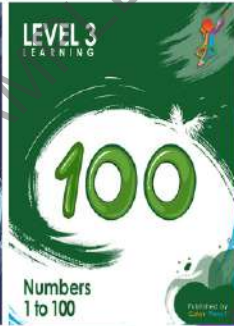
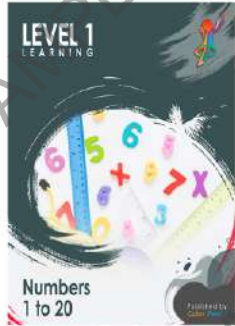
2) 12

3) 18

4) 19

5) 24





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Fractions ascending order

Explanation: To arrange fractions in ascending order, the denominators must be the same. Arrange the fractions from smaller numerator to bigger numerator.

Example:

$\frac{4}{7}$	$\frac{6}{7}$	$\frac{3}{7}$	$\frac{5}{7}$
$\frac{3}{7}$	$\frac{4}{7}$	$\frac{5}{7}$	$\frac{6}{7}$

Exercise 8

Arrange in ascending order

1)

$\frac{4}{5}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$

2)

$\frac{5}{6}$	$\frac{6}{6}$	$\frac{3}{6}$	$\frac{2}{6}$

3)

$\frac{7}{9}$	$\frac{2}{9}$	$\frac{5}{9}$	$\frac{1}{9}$

4)

$\frac{5}{7}$	$\frac{6}{7}$	$\frac{1}{7}$	$\frac{7}{7}$

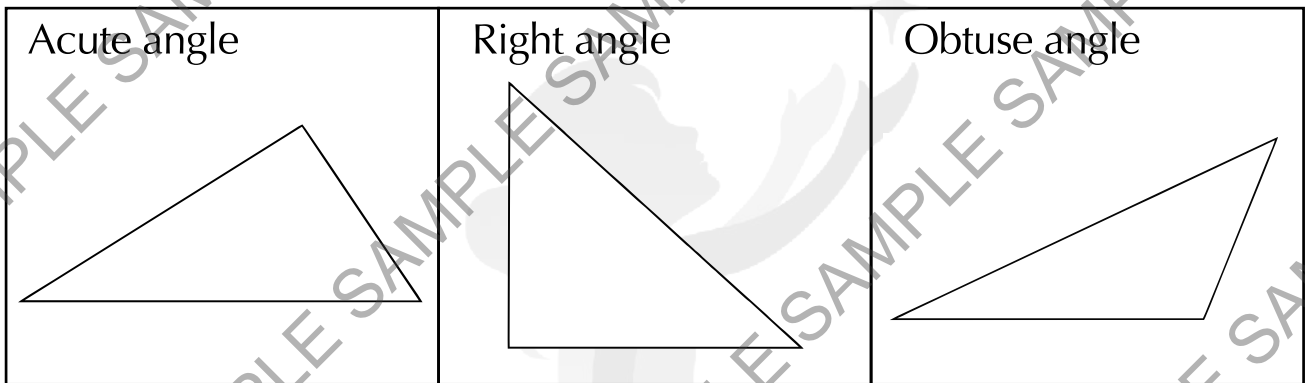
5)

$\frac{3}{4}$	$\frac{1}{4}$	$\frac{4}{4}$	$\frac{2}{4}$

Triangles

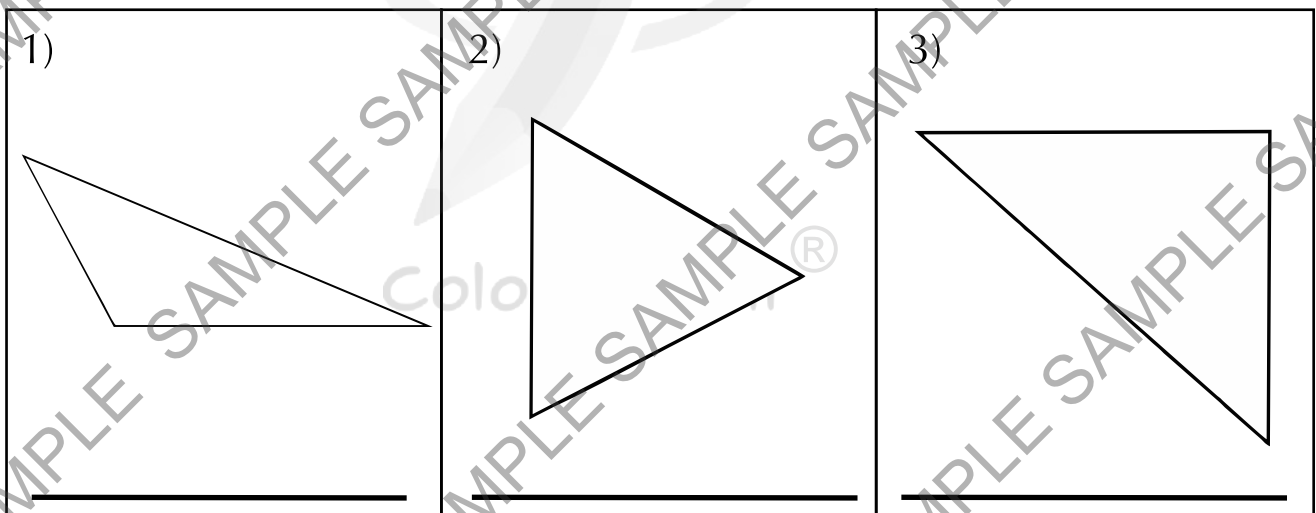
Explanation: Triangle is a plane figure which is formed by three sides and three angles. Based on angles, there are three types of triangles. If all the angles are acute (narrow open), it is called acute triangle. If one of the angle is right angle (two lines perpendicular to each other), it is called right triangle. If one of the angle is obtuse (wide open), it is called obtuse triangle.

Example:



Exercise 18

Write name of the triangle



Exercise 27

Convert hours to minutes

- 1) 3 hours
- 2) 7 hours
- 3) 4 hours

Convert days to hours

- 1) 3 days
- 2) 5 days
- 3) 9 days

Convert cm to mm

- 1) 3 cm
- 2) 8 cm
- 3) 9 cm

Convert km to m

- 1) 9 km
- 2) 2 km
- 3) 8 km

Convert kl to l

- 1) 6 kl
- 2) 5 kl
- 3) 7 kl

Convert yards to feet

- 1) 3 yd
- 2) 8 yd
- 3) 2 yd

Convert dollars to cents and rupees to paisa

- 1) \$4
- 2) Rs. 5
- 3) \$7



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Exercise 8

Write in descending order

1)	486	938	318	639	14)
2)	777	111	555	999	15)
3)	281	494	602	78	16)
4)	300	900	400	500	17)
5)	815	472	501	742	18)
6)	69	355	5	161	19)
7)	391	827	421	693	20)
8)	894	329	571	444	21)
9)	482	694	849	371	22)
10)	328	609	567	51	23)
11)	182	372	630	290	24)
12)	894	329	571	444	25)
13)	691	358	524	168	

181	373	636	525
400	540	450	500
288	688	188	988
291	1000	472	937
783	381	847	592
683	413	851	900
384	583	256	999
720	746	782	719
400	200	600	500
482	861	901	574
982	972	992	952
271	628	474	785

Exercise 18

Addition of 3 digit tens

1) $240 + 120 =$

2) $480 + 230 =$

3) $140 + 340 =$

4) $520 + 160 =$

5) $380 + 120 =$

6) $130 + 420 =$

7) $450 + 290 =$

8) $370 + 330 =$

9) $610 + 160 =$

10) $450 + 270 =$

11) $550 + 290 =$

12) $240 + 390 =$

13) $620 + 280 =$

14) $840 + 140 =$

15) $370 + 470 =$

16) $710 + 110 =$

17) $150 + 540 =$

18) $390 + 470 =$

19) $160 + 610 =$

20) $350 + 460 =$

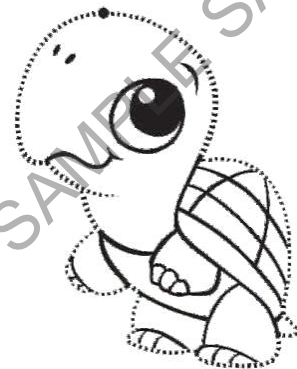
21) $640 + 180 =$

22) $260 + 470 =$

23) $810 + 190 =$

24) $420 + 240 =$

25) $250 + 750 =$



Exercise 27

Doubling of 3 digit numbers

1) 293

2) 148

3) 472

4) 243

5) 421

6) 382

7) 195

8) 471

9) 373

10) 249

11) 361

12) 471

13) 146

14) 315

15) 285

16) 307

17) 126

18) 408

19) 397

20) 284

21) 495

22) 300

23) 183

24) 413

25) 290



Exercise 35

3-digit subtraction with giving

1) $572 - 318$

2) $837 - 285$

3) $418 - 195$

4) $905 - 382$

5) $726 - 219$

6) $174 - 167$

7) $442 - 175$

8) $805 - 350$

9) $245 - 198$

10) $739 - 584$

11) $505 - 475$

12) $994 - 898$



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LEVEL 6

ACTIVITY



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Numbers 1 to 1000
Multiply & Divide

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$17) 32 \times 8$

$18) 18 \times 4$

$19) 73 \times 7$

$20) 47 \times 9$

$21) 29 \times 5$

$22) 82 \times 4$

$23) 33 \times 6$

$24) 97 \times 2$

$25) 49 \times 7$

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Exercise 13

Find square using special method

1) $20^2 =$

2) $70^2 =$

3) $10^2 =$

4) $60^2 =$

5) $80^2 =$

6) $30^2 =$

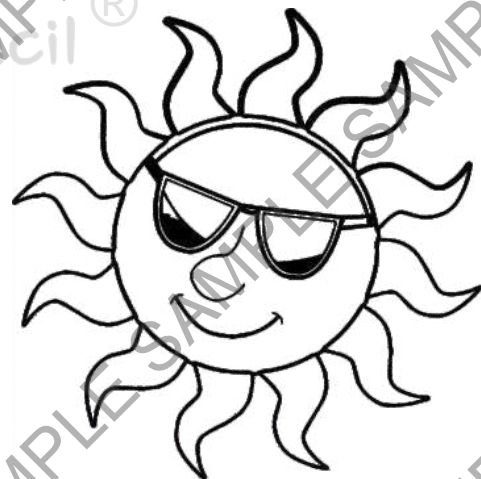
7) $90^2 =$

8) $40^2 =$

9) $100^2 =$

10) $50^2 =$

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Exercise 20

Division - 2-digit quotient with remainder

1) $47 \div 2$	2) $44 \div 3$	3) $63 \div 4$	4) $69 \div 5$
5) $81 \div 6$	6) $89 \div 7$	7) $93 \div 8$	8) $94 \div 9$
9) $59 \div 2$	10) $62 \div 3$	11) $73 \div 4$	12) $84 \div 5$
13) $87 \div 6$	14) $81 \div 7$	15) $99 \div 8$	16) $97 \div 9$

Exercise 27

Divide by 4 using halving

1) $12 \div 4 =$

2) $44 \div 4 =$

3) $72 \div 4 =$

4) $84 \div 4 =$

5) $96 \div 4 =$

6) $124 \div 4 =$

7) $276 \div 4 =$

8) $300 \div 4 =$

9) $456 \div 4 =$

10) $520 \div 4 =$

11) $648 \div 4 =$

12) $716 \div 4 =$

13) $804 \div 4 =$

14) $900 \div 4 =$

15) $176 \div 4 =$

16) $284 \div 4 =$

17) $392 \div 4 =$

18) $416 \div 4 =$

19) $572 \div 4 =$

20) $600 \div 4 =$

21) $784 \div 4 =$

22) $828 \div 4 =$

23) $944 \div 4 =$

24) $976 \div 4 =$

25) $996 \div 4 =$





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LEVEL 7

ACTIVITY



Fractions and Shapes

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Exercise 6

Circle the smallest fraction

1) $\frac{3}{7}$ $\frac{6}{7}$ $\frac{1}{7}$ $\frac{4}{7}$

9) $\frac{4}{9}$ $\frac{7}{9}$ $\frac{3}{9}$ $\frac{1}{9}$

2) $\frac{4}{5}$ $\frac{1}{5}$ $\frac{3}{5}$ $\frac{2}{5}$

10) $\frac{4}{11}$ $\frac{8}{11}$ $\frac{6}{11}$ $\frac{9}{11}$

3) $\frac{2}{9}$ $\frac{8}{9}$ $\frac{3}{9}$ $\frac{5}{9}$

11) $\frac{6}{9}$ $\frac{4}{9}$ $\frac{8}{9}$ $\frac{9}{9}$

4) $\frac{5}{7}$ $\frac{6}{7}$ $\frac{1}{7}$ $\frac{2}{7}$

12) $\frac{7}{13}$ $\frac{4}{13}$ $\frac{8}{13}$ $\frac{3}{13}$

5) $\frac{3}{8}$ $\frac{5}{8}$ $\frac{4}{8}$ $\frac{2}{8}$

13) $\frac{8}{11}$ $\frac{2}{11}$ $\frac{5}{11}$ $\frac{7}{11}$

6) $\frac{1}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ $\frac{4}{4}$

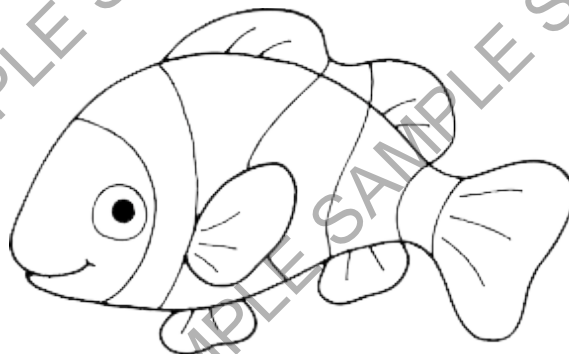
14) $\frac{5}{13}$ $\frac{4}{13}$ $\frac{3}{13}$ $\frac{7}{13}$

7) $\frac{3}{5}$ $\frac{5}{5}$ $\frac{2}{5}$ $\frac{4}{5}$

15) $\frac{2}{9}$ $\frac{9}{9}$ $\frac{8}{9}$ $\frac{3}{9}$

8) $\frac{3}{6}$ $\frac{1}{6}$ $\frac{4}{6}$ $\frac{2}{6}$

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Exercise 16

Put appropriate sign (+, -)

1) $\frac{1}{2}$ $\frac{1}{2} = \frac{2}{2}$

11) $\frac{4}{10}$ $\frac{3}{10} = \frac{7}{10}$

2) $\frac{2}{3}$ $\frac{1}{3} = \frac{1}{3}$

12) $\frac{8}{10}$ $\frac{2}{10} = \frac{6}{10}$

3) $\frac{3}{4}$ $\frac{1}{4} = \frac{2}{4}$

13) $\frac{7}{11}$ $\frac{3}{11} = \frac{10}{11}$

4) $\frac{3}{5}$ $\frac{1}{5} = \frac{4}{5}$

14) $\frac{4}{11}$ $\frac{5}{11} = \frac{9}{11}$

5) $\frac{4}{5}$ $\frac{2}{5} = \frac{2}{5}$

15) $\frac{12}{13}$ $\frac{7}{13} = \frac{5}{13}$

6) $\frac{2}{6}$ $\frac{1}{6} = \frac{1}{6}$

16) $\frac{10}{13}$ $\frac{3}{13} = \frac{7}{13}$

7) $\frac{4}{6}$ $\frac{1}{6} = \frac{5}{6}$

17) $\frac{13}{15}$ $\frac{7}{15} = \frac{6}{15}$

8) $\frac{2}{7}$ $\frac{4}{7} = \frac{6}{7}$

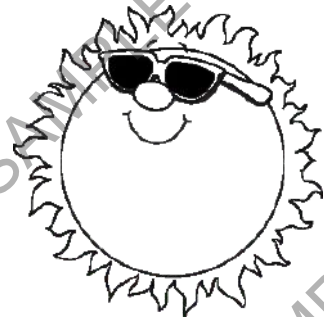
18) $\frac{7}{15}$ $\frac{8}{15} = \frac{15}{15}$

9) $\frac{3}{7}$ $\frac{1}{7} = \frac{4}{7}$

19) $\frac{12}{17}$ $\frac{4}{17} = \frac{16}{17}$

10) $\frac{8}{9}$ $\frac{2}{9} = \frac{6}{9}$

20) $\frac{17}{19}$ $\frac{9}{19} = \frac{8}{19}$



Exercise 25

Find area of the rectangle

1) $l = 4 \text{ cm}, w = 5 \text{ cm}$

11) $l = 40 \text{ cm}, w = 25 \text{ cm}$

2) $l = 3 \text{ cm}, w = 7 \text{ cm}$

12) $l = 11 \text{ cm}, w = 34 \text{ cm}$

3) $l = 5 \text{ cm}, w = 6 \text{ cm}$

13) $l = 16 \text{ cm}, w = 20 \text{ cm}$

4) $l = 2 \text{ cm}, w = 9 \text{ cm}$

14) $l = 25 \text{ cm}, w = 25 \text{ cm}$

5) $l = 8 \text{ cm}, w = 1 \text{ cm}$

15) $l = 50 \text{ cm}, w = 48 \text{ cm}$

6) $l = 10 \text{ cm}, w = 5 \text{ cm}$

16) $l = 24 \text{ cm}, w = 26 \text{ cm}$

7) $l = 4 \text{ cm}, w = 12 \text{ cm}$

17) $l = 74 \text{ cm}, w = 99 \text{ cm}$

8) $l = 7 \text{ cm}, w = 15 \text{ cm}$

18) $l = 80 \text{ cm}, w = 67 \text{ cm}$

9) $l = 24 \text{ cm}, w = 8 \text{ cm}$

19) $l = 99 \text{ cm}, w = 81 \text{ cm}$

10) $l = 9 \text{ cm}, w = 17 \text{ cm}$

20) $l = 95 \text{ cm}, w = 85 \text{ cm}$

Exercise 3

S. No	Fraction	Numerator	Denominator	PF or IF
1	$\frac{1}{4}$	1	4	PF
2	$\frac{2}{6}$	2	6	PF
3	$\frac{6}{4}$	6	4	IF
4	$\frac{7}{8}$	7	8	PF
5	$\frac{3}{9}$	3	9	PF
6	$\frac{5}{10}$	5	10	PF
7	$\frac{8}{4}$	8	4	IF
8	$\frac{9}{12}$	9	12	PF
9	$\frac{7}{11}$	7	11	PF
10	$\frac{10}{4}$	10	4	IF
11	$\frac{11}{13}$	11	13	PF
12	$\frac{7}{15}$	7	15	PF
13	$\frac{15}{11}$	15	11	IF
14	$\frac{3}{13}$	3	13	PF
15	$\frac{13}{3}$	13	3	IF
16	$\frac{9}{6}$	9	6	IF
17	$\frac{6}{12}$	6	12	PF
18	$\frac{8}{14}$	8	14	PF
19	$\frac{14}{7}$	14	7	IF
20	$\frac{20}{18}$	20	18	IF



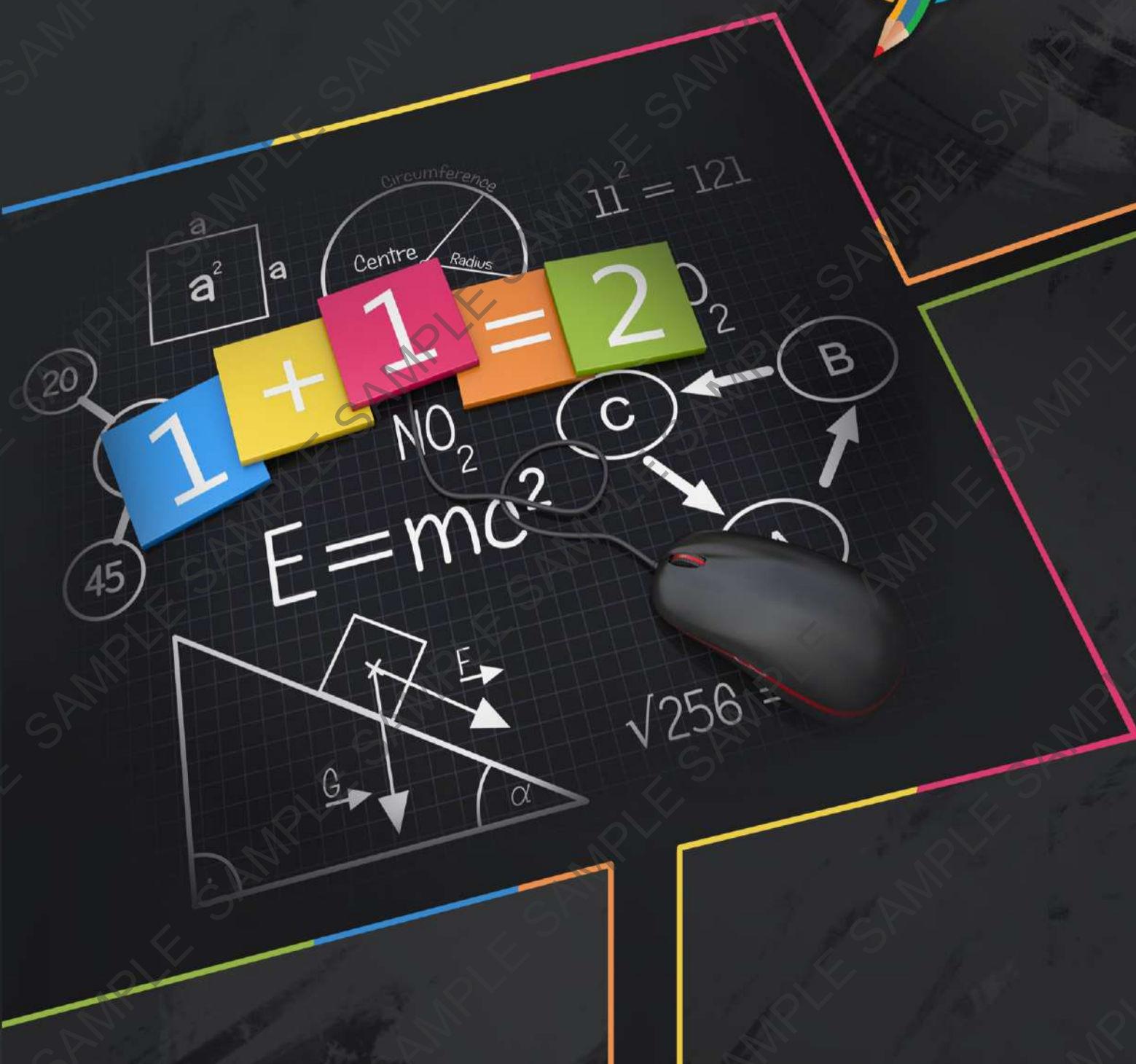
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TRAINING GUIDE



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LEVEL 1~17**

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About the book

Vedic Math influenced math learning and activities. More than 1700% times faster than regular Math. It enhances in sharpening the mind, increases mental agility and intelligence. Increases speed and accuracy. It improves memory and boosts self-confidence. It helps in developing the left and right sides of the brain. Easy to master and apply.

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8	अन्त्ययोर्दशकेऽपि Antyayordasake'pi	<i>Last Totalling 10</i>
9	अन्त्ययोरेव Antyayoreva	<i>Only the Last Terms</i>
10	समुच्चयगुणितः Samuccayagunitah	<i>The Sum of the Products</i>
11	लोपनस्थापनाभ्यां Lopanasthāpanābhyām	<i>By Alternate Elimination and Retention</i>
12	विलोकनं Vilokanam	<i>By Mere Observation</i>
13	गुणितसमच्चयः समुच्चयगुणितः Gunitsamuccayah Samuccayagunitah	<i>The Product of the Sum is the Sum of the Products</i>
14	ध्वजाङ्क Dhvajāṅka	<i>On the Flag</i>

Every concept in Math is under any one of the sutras. More than one sutra is applicable to some methods. In this book, some sutras are mentioned under some methods. It just shows how the sutras are related to concepts. It does not mean that the particular sutra is only applicable to that particular method.

NUMBERS

Sutra: "By one more than the one before"

Our number system is based on decimal number system. 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 are called digits. Combination of digits are called numbers. Formation of number is under sutra "By one more than the one before".

For example, 32, 33, 34, 35, and so on.

Number 33 is one more than the before number 32, 34 is one more than the before number 33 and so on.

Add units place $7 + 8 = 15$ in which 1 is already added to tens place so the units place answer is 5.

$$3817 + 2958 = 6775$$

$$385 + 246$$

Hundreds sum $3 + 2 = 5$, tens sum is more than 10 so hundreds sum is $5 + 1 = 6$

Tens sum $8 + 4 = 12$ in which 1 is already added to hundreds place, tens sum is 2 but units sum is more than 10, so tens sum becomes $2 + 1 = 3$

Units sum $5 + 6 = 11$ in which 1 is already added to tens place so units sum is 1.

$$385 + 246 = 631$$

Observe the sum of next digit and write the answer

Exercise 10

Add from left to right

1) $46 + 23$

2) $73 + 58$

3) $88 + 44$

4) $835 + 127$

5) $585 + 375$

6) $482 + 129$

7) $3826 + 1425$

8) $2857 + 4894$

9) $7361 + 1299$

10) $5237 + 3488$

11) Sum of 9 in between

Sutra: "By addition"

Type: General

When we add two numbers from left to right, sometimes there is a sum of 9 in between. Every time before we write the answer, check the next place sum. If the sum is 9, don't write the previous place answer, keep the answer in mind, check the sum of next place. If it is less than 10, write the answers as it is. If it is 10 or more than 10, we should increase the answer in our mind by 1 and write the remaining digits in the next place.

5) Subtracting base numbers

Sutra: "By mere observation"

Type: Special

Here the subtrahend is the base number. Split zeros of the subtrahend and split as many digits in the minuend. Subtract the remaining digits using backward counting or splitting and write the answer with split digit of the minuend.

Examples :

$$4329 - 800$$

The subtrahend has two zeros and split it. Split last two digits of the minuend, do $43 - 8$ using splitting which gives 35 and write it with 29.

$$43 | 29 - 8 | 00 = 43 - 8 | 29 = 3529$$

$$4329 - 800 = 3529$$

$$471 - 20$$

Here the subtrahend has one zero, split it and split last digit of the minuend.

$$47 | 1 - 2 | 0 = 47 - 2 | 1 = 451$$

$$471 - 20 = 451$$

Observe the numbers and do mind calculation

Exercise 19

Subtract base number

1) $74 - 30$

2) $98 - 50$

3) $482 - 40$

4) $928 - 70$

5) $693 - 400$

6) $847 - 500$

7) $2957 - 80$

8) $2504 - 70$

9) $3295 - 500$

10) $8275 - 7000$

12) Subtract from unity base numbers

Sutra: "All from 9 and the last from 10"

Type: Special

Unity base numbers are powers of 10, they are 10, 100, 1000, 10000 and so on. There is a special method to subtract any numbers from base numbers using the sutra "All from 9 and the last from 10". The method of subtraction from right to left from unity base number is given below.

$$\begin{array}{r} \begin{array}{ccccccc} 9 & 9 & 9 & 10 & & & \\ \cancel{1} & \cancel{0} & \cancel{0} & \cancel{0} & \cancel{0} & & \\ 3 & 8 & 4 & 9 & - & & \\ \hline 6 & 1 & 5 & 1 & & & \\ \hline \end{array} \end{array}$$

This is the method using the concept of borrowing or regrouping. Here we subtracted all the digits from 9 and the last digit from 10 which is in the sutra form in Vedic Math. To subtract any number from unity base number with number of zeros of the base number equal to number of digits in the subtrahend, we can use the sutra "All from 9 and the last from 10" which means subtract all digits from 9 and the last digit from 10. We can get the answer just by observation using this sutra.

Examples:

$$1000 - 328$$

Before using the sutra, check two conditions. First, minuend should be a base number. Next number of zeros of the minuend is equal to number of digits of the subtrahend. Both are satisfied, so we can use the sutra "All from 9 and the last from 10".



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