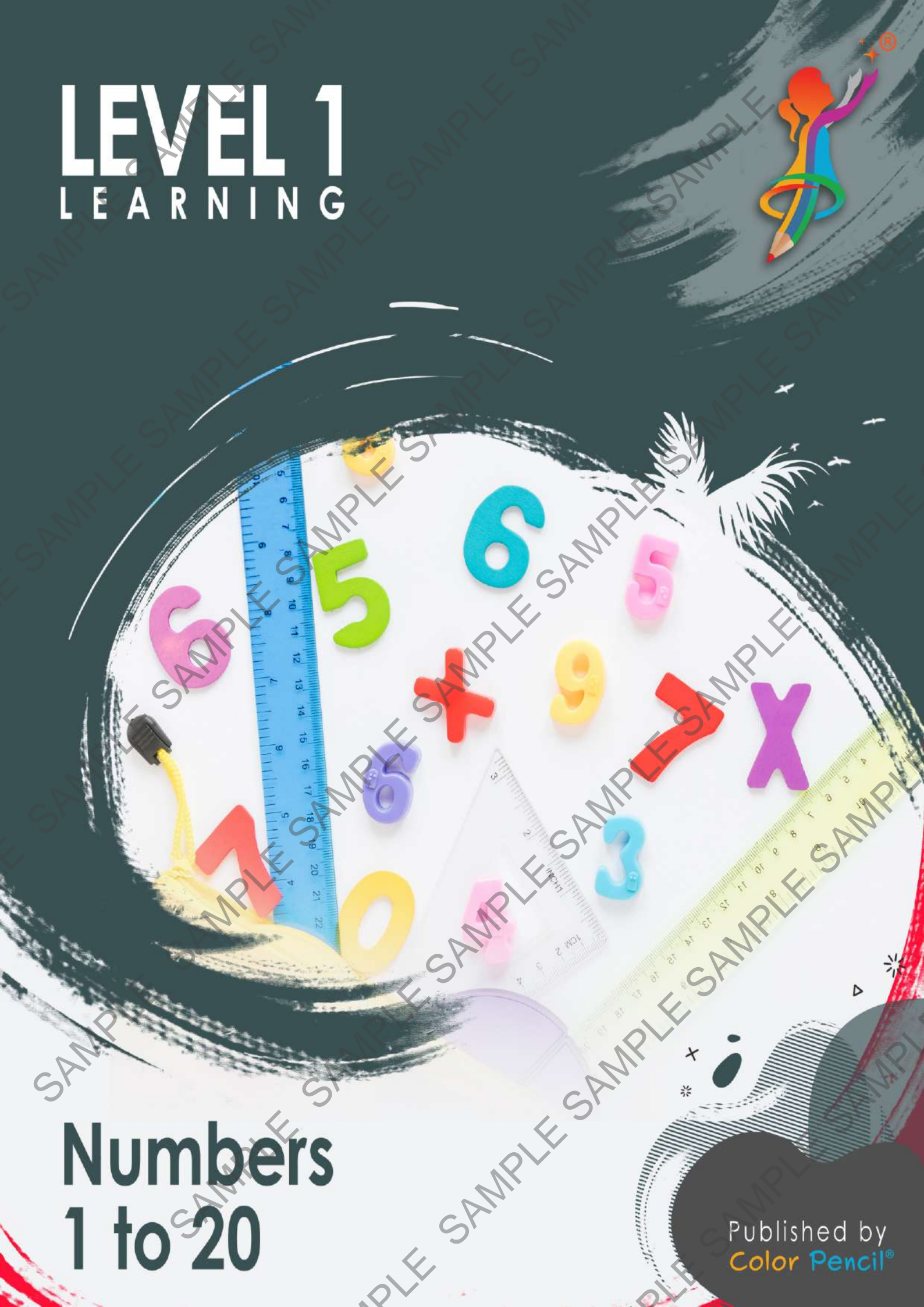


# LEVEL 1

## LEARNING



# Numbers 1 to 20

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## Smallest number

**Explanation:** A set of numbers are given, circle the smallest number in the given set.

**Example:** 7    2    8    9

The smallest number of the given set is 2, circle 2.

7    ②    8    9

## Exercise 8

**Circle the smallest number**

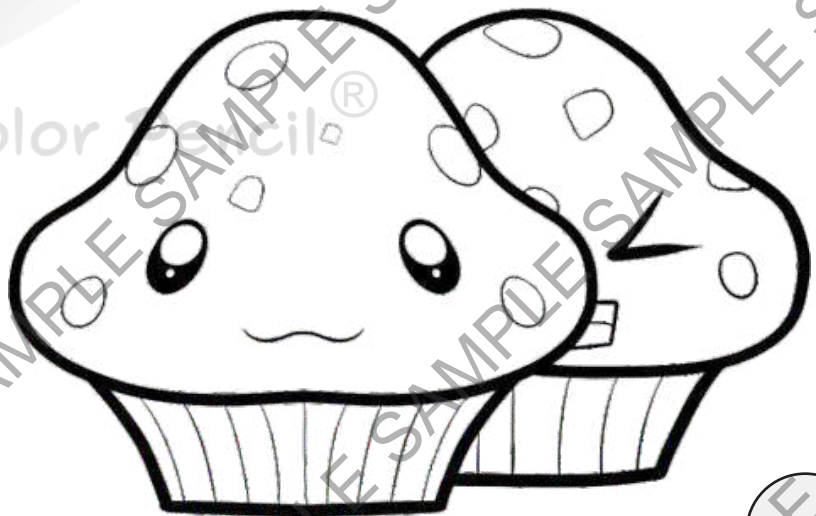
1) 6    9    3    7

2) 2    5    1    8

3) 4    2    8    6

4) 8    3    9    1

5) 3    4    5    6



## 10-point circle

**Explanation:** The below diagram represents pairs of numbers which add to give 10.

$$1 + 9 = 10$$

$$2 + 8 = 10$$

$$3 + 7 = 10$$

$$4 + 6 = 10$$

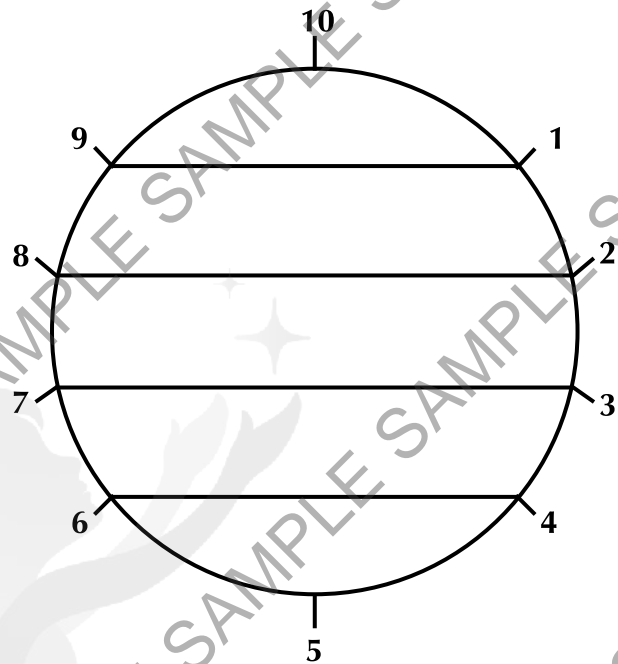
$$5 + 5 = 10$$

$$6 + 4 = 10$$

$$7 + 3 = 10$$

$$8 + 2 = 10$$

$$9 + 1 = 10$$



We can use our fingers to get pair of a number. For example to find pair of 2, open 10 fingers and fold 2 finger, count the remaining fingers, it gives 8, which is a pair of 2.

## Exercise 18

### Addition using 10-point circle

1)  $3 + 7 = \square$

2)  $1 + 9 = \square$

3)  $4 + \square = 10$

4)  $5 + \square = 10$

5)  $\square + 2 = 10$





## Put appropriate sign

**Explanation:** Put + or – in the box by observing the numbers.

**Example:**  $4 \square 3 = 7$

4 + 3 is 7 and 4 – 3 is 1, so + is the appropriate sign for this box.

$$4 \boxed{+} 3 = 7$$

### Exercise 28

1)  $5 \square 1 = 6$

2)  $8 \square 3 = 5$

3)  $1 \square 2 = 3$

4)  $7 \square 3 = 4$

5)  $3 \square 4 = 7$



## Greater than, less than or equal to

**Explanation:** Two numbers are given. If the number on the left side is greater than the number on the right side, fill the box with  $>$  symbol. If the number on the left side is smaller than the number on the right side, fill the box with  $<$  symbol. If the numbers are same, fill the box with  $=$  symbol.

**Example:** 12  17

Number on the left side is 12 and right side is 17. 12 is smaller than 17, so put  $<$  symbol in the given box.

12  17

### Exercise 7

Put  $<$ ,  $>$ , or  $=$  in the box.

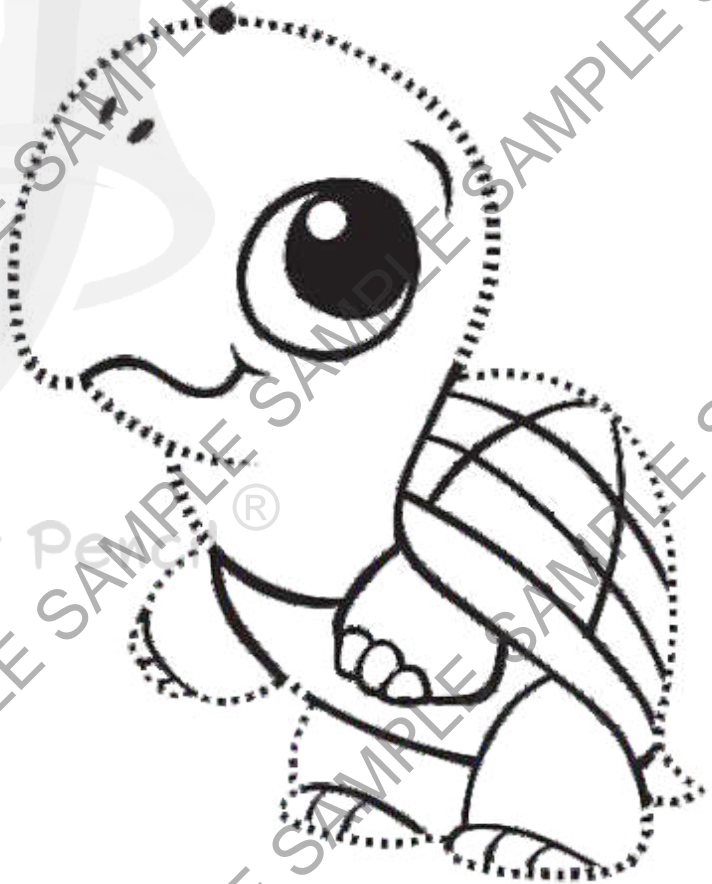
1) 18  14

2) 13  15

3) 10  19

4) 12  16

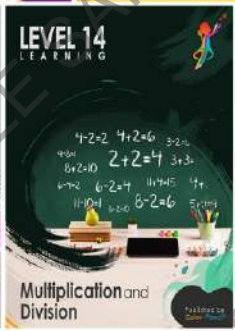
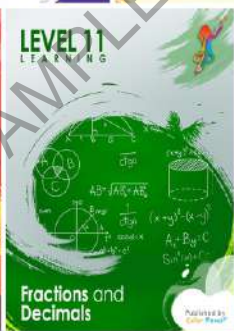
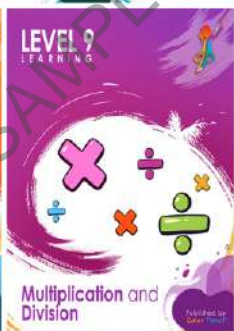
5) 15  15







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# LEVEL 2

## LEARNING



# Numbers 1 to 100

## and Shapes

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## Ascending order

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

### Example

24	19	46	33
19	24	33	46

## Exercise 8

Write in ascending order

1)

26	15	32	19

2)

45	28	9	26

3)

44	33	11	22

4)

15	23	46	14

5)

27	15	49	35



## Even numbers between 1 and 50

**Explanation:** Even numbers are numbers end with 0, 2, 4, 6, and 8.

### Exercise 18

Write even numbers between 1 and 50.






## Smallest number

**Explanation:** A set of numbers are given, circle the smallest number in the given set.

**Example:** 57   42   68   79

The smallest number of the given set is 42 and circle number 42.

57   (42)   68   79

### Exercise 5

#### Circle the smallest number

1) 56   29   33   77

2) 52   55   51   54

3) 44   82   93   31

4) 88   89   97   91

5) 33   3   53   63



## Subtract from base numbers

**Explanation:** We can use backward counting to get the answer. Another method is, less 1 in tens place and write with pair of the subtrahend in units place.

**Example: 70 – 8**

7 – 1 = 6 in tens place and pair of 8 is 2 in units place, the answer is 62.

$$70 - 8 = 62$$

### Exercise 15

#### Subtract from base number

1)  $70 - 3 = \square$

2)  $50 - 7 = \square$

3)  $80 - 5 = \square$

4)  $60 - 1 = \square$

5)  $40 - 4 = \square$







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# LEVEL 1

ACTIVITY



## Numbers 1 to 20

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## Exercise 6

Write the middle number

1) 4  6

2) 8  10

3) 1  3

4) 5  7

5) 7  9

6) 2  4

7) 6  8

8) 3  5

9) 5  7

10) 8  10

11) 1  3

12) 7  9

13) 5  7

14) 4  6

15) 6  8

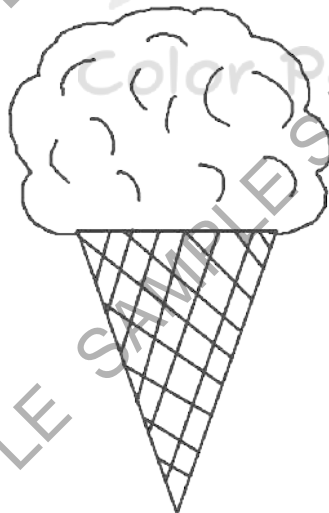
16) 2  4

17) 8  10

18) 1  3

19) 5  7

20) 3  5





## Exercise 14

### Addition with zero

$1) 3 + 0 = \square$

$2) 0 + 6 = \square$

$3) 8 + \square = 8$

$4) \square + 0 = 2$

$5) 0 + \square = 9$

$6) 0 + 5 = \square$

$7) \square + 10 = 10$

$8) \square + 0 = 4$

$9) \square + 0 = 1$

$10) 0 + 7 = \square$

$11) 3 + \square = 3$

$12) \square + 5 = 5$

$13) 0 + \square = 4$

$14) 6 + \square = 6$

$15) \square + 8 = 8$

$16) \square + 0 = 9$

$17) 10 + 0 = \square$

$18) 7 + \square = 7$

$19) 0 + 2 = \square$

$20) 0 + \square = 3$



## Exercise 22

### Subtract zero

$1) \quad 5 - 0 = \square$

$2) \quad 7 - \square = 7$

$3) \quad \square - 0 = 9$

$4) \quad 1 - 0 = \square$

$5) \quad 2 - \square = 2$

$6) \quad 8 - \square = 8$

$7) \quad 4 - \square = 4$

$8) \quad \square - 0 = 3$

$9) \quad \square - 0 = 6$

$10) \quad \square - 0 = 10$

$11) \quad 1 - \square = 1$

$12) \quad 9 - 0 = \square$

$13) \quad \square - 0 = 2$

$14) \quad 8 - 0 = \square$

$15) \quad 3 - \square = 3$

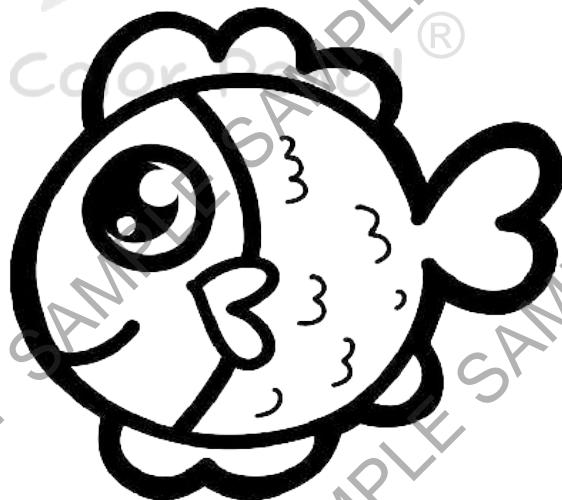
$16) \quad \square - 0 = 7$

$17) \quad 4 - 0 = \square$

$18) \quad \square - 0 = 5$

$19) \quad 10 - \square = 10$

$20) \quad 6 - 0 = \square$



## Exercise 1

Write numbers from 1 to 20








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# LEVEL 2

## ACTIVITY



# Numbers 1 to 100

## and Shapes

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## Exercise 8

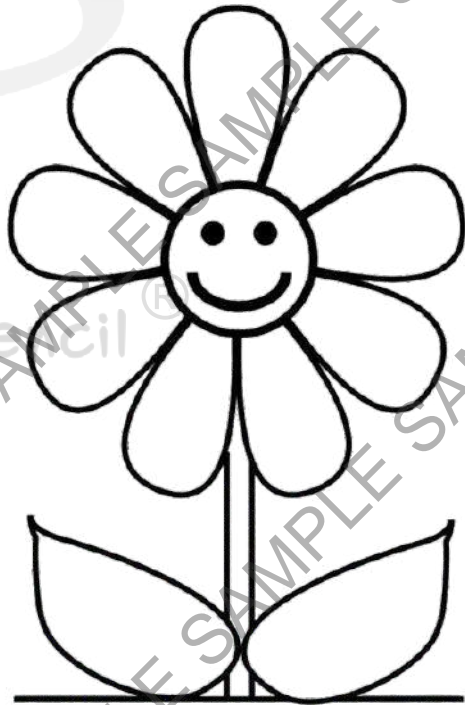
Write in ascending order

1)	26	15	32	19				
2)	45	28	9	26				
3)	44	33	11	22				
4)	15	23	46	14				
5)	27	15	49	35				
6)	35	27	18	44				
7)	42	28	31	27				
8)	36	12	9	44				
9)	9	18	32	26				
10)	10	4	26	15				

11)	8	23	19	41				
12)	30	20	15	25				
13)	17	41	49	34				
14)	47	44	43	45				
15)	21	48	12	35				
16)	11	41	21	31				
17)	37	27	29	12				
18)	12	34	14	27				
19)	48	42	47	43				
20)	27	8	17	31				

## Exercise 17

Write odd numbers between 1 and 50.

## Exercise 4

Write the middle number

1) 72  74      11) 16  18

2) 88  90      12) 93  95

3) 61  63      13) 58  60

4) 45  47      14) 25  27

5) 80  82      15) 39  41

6) 69  71      16) 72  74

7) 55  57      17) 44  46

8) 3  5      18) 68  70

9) 91  93      19) 81  83

10) 37  39      20) 50  52





## Exercise 13

Write numbers from 100 to 1


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# TRAINING GUIDE



**PRIMARY  
LEVEL 1~17**

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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 Gunitasamuccayah 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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