Number Play

Class VI Mathematics – Worksheets

NUMBER PLAY

WORKSHEET-1

Section A: MCQs Part 1 (10 × 1 = 10 marks)

1. The greatest and the smallest 4-digit number which can be formed using the digits 9, 7, 4, 1 without repetition are

(a) 9471, 1749 (b) 9174, 4719 (c) 9714, 4179 (d) 9741, 1479

2. The supercell in the given table is

34	94	86	56	43	20

(a) 86 (b) 43 (c) 94 (d) 56

3. What is the difference between largest three-digit number and smallest 2-digit number ?

(a) 898 (b) 899 (c) 989 (d) 998

4. Which of the following is the Kaprekar constant?

(a) 4176 (b) 6174 (c) 7614 (d) 1476

5. A cell which is larger than its adjacent cells.

(a) minor cel (b) major cell (c) supercell (d) none of these

6 What is the smallest 4 digit number

(a)1000 (b)1001 (c)1100 (d)1010

7 Which of the following numbers is a palindrome?

a) 12321 (b) 2001 (c)1100 (d)1000

8 Which of the following is the correct sum of digits for the number 176?

(a) 12 (b) 14 (c) 16 (d) 17

9. The smallest 2 digit number whose digit sum is 9?

(a) 81 (b) 72 (c) 18 (d) 27

10. Smallest 4digit number with different digits

(a)1230 (b) 0123 (c)1023 (d)1234

MCQs Part 2 (10 × 1 = 10 marks)

11.Which of the following numbers has the greatest digit sum?

a. 6825 b. 5938 c. 7770 d. 9900

12. Which of the following is a 5-digit palindrome?

a. 35253 b. 35453 c. 35435 d. 34543

13. Which statement about a supercell is always true?

a. It is smaller than all neighbouring cells. b. It is greater than all its neighbouring cells.
c. It is the smallest number in the table. d. It is always at the centre of the table.

14. Which of the following numbers will have the smallest digit sum?

a. 9999 b. 10009 c. 8008 d. 7007

15. Which of the following is NOT a palindrome?

a. 7337 b. 2552 c. 4674 d. 7457

16. Kaprekar's constant for 4-digit numbers is:

a. 495 b. 6174 c. 1089 d. 9999

17. According to the Collatz rule, if the current number is 18, the next number will be:

a. 9 b. 54 c. 19 d. 10

18. Which of the following is the best example of estimation?

a. Counting every student in the school.
b. Guessing that about 800 students study in the school.
c. Measuring the exact height of a table.
d. Calculating the exact cost of groceries.

19. Which of the following numbers can be formed using the digits 2, 4, 6 and 8 exactly once and is the largest?

a. 8642 b. 8462 c. 6824 d. 8624

20. A number has a digit sum of 18. Which of the following could be that number?

a. 5318 b. 6723 c. 7208 d. 4506

WORKSHEET-2

Section B: Short Answer (10 × 2 = 20 marks)

1. What is the sum of the digits in the number 898 and 717?

2. Write two numbers whose digit sum is 14.

3. The number 2754 lies on the _____ side of 3000 on the number line.

4. What is the first step of the Collatz conjencture for an even number?

5. The time now is 10:01. How many minutes until the clock shows the next palindromic time? What about the one after that?

6. Apply the Collatz Conjecture starting with the number 15.

7. Write 2 digit even palindromes.

8. Find 8-3 on the number line

9. Apply kaprekar constant to 1225

10. What is the next number in the collatz sequence after 8

Section C: Short Answer (6 × 3 = 18 marks)

11. Apply the Kaprekar rule to the number 2114. Show each step and verify if the iteration leads to Kaprekar constant.

12. Write your year of birth on a piece of paper and start applying the Kaprekar's routine to your year of birth. Now, observe how many rounds does your year of birth take to reach the Kaprekar's constant?

13. Estimate the number of litres a mug,a bucket and an overhead can hold.

14 I am a 5-digit palindrome.
I am an odd number.
My ‘t’ digit is double of my ‘u’ digit.
My ‘h’ digit is double of my ‘t’ digit. Who am I

15. Estimate the number of words in a page of your maths textbook. If one page contains approximately 250 words, estimate how many words are in the whole book (assuming there are 100 pages).

16. Estimate the number of steps you would take to walk from your classroom to the school gate. If your school gate is 200 meters away and each step covers about 0.5 meters, how many steps will it take?

Section D: Long Answer (5 × 4 = 20 marks)

17. Write all possible 3-digit palindromes using these digits 1,2,3.

18. Provide a list of all palindromes times in a 12 hour cycle.

19.Write 5 digit number and 3digit number such that their sum is 186700

20.Check if the collatz conjecture holds for 35,22,19,18

Case Study Based Questions (2 × 4 = 8 marks)

21. Geeta is trying to understand shifting digits with four tiles on which number 1, 2, 3, 4 is written.

(i) The number if she arranges tiles in increasing order is _____

(ii) What is the largest number?

(a) 4321 (b) 4123 (c) 3412 (d) 4231

(iii) What is the smallest number?

(a) 1234 (b) 4231 (c) 1342 (d) 1243

22. Kaprekar Contest Three friends—A, B, and C—decided to challenge themselves with a fascinating number puzzle called Kaprekar's routine. Each picked a different four-digit number: A chose 8640, B selected 7032, and C took 5421. Their goal was to apply the Kaprekar steps repeatedly and see how many iterations it takes for each number to reach the mysterious constant 6174. They also wanted to find out who among them would reach 6174 first in this exciting mathematical race.

(a) How many steps for each? (b) Who reaches 6174 first?

Self Assessment:

I understood all the concepts ☐ Yes ☐ No

I need more practice ☐ Yes ☐ No

Name of Concepts having doubts/Not Cleared: _____

Parent's Assessment:

My ward understood all the concepts ☐ Yes ☐ No

He/She need more practice ☐ Yes ☐ No

Name of Concepts having doubts/Not Cleared: _____

Signature of Parent:

Teacher's Assessment

Answers of Worksheet -1:

Q.No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ans	d	c	c	b	c	a	a	b	c	c	b	d	b	b	d	b
Q.No.	17	18	19	20												
Ans	a	b	a	b												

Answers of Worksheet -2:

Q.No.	1	2	3	4	5	6	7	8
Ans	25,15	59,68	left	Divide the no by2	11:11	Correct steps	22,44	5
Q.No.	9	10	11	12	13	14	15	16
Ans	Correct steps	4	Correct steps	Correct steps	Correct estimste	12421	25000	400
Q.No.	17	18	19	20	21	22		
Ans	111 121 131 212…	Do yourself	18000,670	Correct steps	1234,4321,1234	(i)6,3,2 (ii)c		