INDIAN SCHOOL NIZWA – WORKSHEET

MATHEMATICS

CH: 6 NUMBER PLAY

Name: _____ Date: _____ Class: VII Sec: _

I. Multiple Choice Questions

1. What is the parity of the sum of an odd number of odd numbers and an even number of even numbers?
   (a) Always odd (b) Always even
   (c) Depends on the specific numbers chosen (d) Sometimes odd, sometimes even
2. What is the parity of the number of small squares in a 7×9 grid?
   (a) Even (b) Odd (c) Depends on the grid layout (d) Cannot be determined
3. In the Virahanka- Fibonacci sequence (1,2,3,5, 8, 13, ……), what is the parity of the 9^{th} term?
   (a) Odd (b)Even (c) Depends on the starting terms (d) Cannot be determined
4. Two consecutive numbers in the Virahanka sequence are 377 and 610.What is the first of the next two numbers?
   (a) 987 (b)1597 (c) 2584 (d) 4181
5. The expression $4n + 3$ generates numbers for different values of n. What is the parity of $4n + 3$ where n = 3?
   (a) even (b) odd (c) sometimes even, sometimes odd (d) None of the above
6. The parity of the expression $3n + 2$, when $n = 2$, is
   (a) even (b) odd (c) sometimes even, sometimes odd (d) None of the above
7. For a grid with dimensions 17 × 20, the parity of the number of small squares is
   (a) even (b) odd (c) both (d) None of these
8. 7 th term of the Virahanka – Fibonacci sequence is
   (a) 34 (b) 21 (c) 55 (d) 13
9. The number of all rhythms of short and long syllables having 9 beats is
   (a) 34 (b) 21 (c) 55 (d) 13
10. The product of two odd numbers is
    (a) even (b) odd (c) sometimes even and sometimes odd (d) None of the above

II. Answer thefollowing

11. Riya arranges the numbers 1 to 9 in a 3 × 3 grid so that the sum of the numbers in each row is the same.She notices that the sum of each row is 15.
    a) What is this arrangement of numbers called?
    b) What number must be placed in the centre of the grid?
12. Meera has 5 boxes and number cards (1,3,5,…..).Can she pick 5 cards that add to 50?
13. What is the 30^{th} odd number in the sequence 1,3,5,…….?
14. In the puzzle K +K+K = LK, where K and L are digits, what is K?
15. A bulb is **ON**.Vijay toggles it 63 times.Is the bulb **ON** or **OFF**?
16. Kiran has an odd number of ₹2 coins and an even number of ₹5 coins.Can the total amount be ₹37? Explain why?
17. Write an algebraic expression which always gives odd numbers for integer n.
18. If each number in a 3 × 3 magic square (numbers 1 to 9) is multiplied by 3, is the result still a magic square? What is the new magic sum?
19. Design a 2 × 3 grid with 3 odd and 3 even numbers so that all row sums are odd and all column sums are even.Is this possible?
20. Arjun has 60 loose sheets from a book, each printed on both sides.Can the sum of the page numbers be 7000? Why or why not?
21. A door is initially locked. Tashi toggles the lock 50 times, where each toggle switches the door's state (from locked to unlocked or from unlocked to locked). Will the door be locked or unlocked at the end? Explain why?
22. Two consecutive numbers in the Virahanka sequence are 987 and 1597.What are the next two numbers in the sequence? What are the previous two numbers in the sequence?
23. Solve this Cryptarithm.

    a)

$$\begin{array}{r} UT \\ +\ TA \\ \hline TAT \end{array}$$

    b)

$$\begin{array}{r} \ \ B\ B \\ +\ \ \ A \\ \hline A\ C\ C \end{array}$$

24. Below you will find a set of magic number puzzles. Fill in the blanks to solve the puzzle for the given magic sum:
    (a) The magic sum is 27

15		
16		12
	18	

    (b) The magic sum is 42

10		
11		7
	13	

III. Assertion- Reason Based Questions

25. **Assertion (A):** The sum of two even numbers is always an even number.
Reason (R): The product of an even number and any number is always an even number.
In the given question, a statement of Assertion is followed by a statement of Reason. Choose the correct option as:
(a) Both assertion and reason are true, and the reason is the correct explanation of the assertion.
(b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
(c) Assertion is true and the reason is false.
(d) Assertion is false and the reason is true.

26. **Assertion (A):** 10 th term of the Virahanka – Fibonacci sequence is 89.
Reason (R): The Virahanka – Fibonacci numbers form a sequence where each number is the sum of two preceding ones.
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

27. **Assertion (A)**: Sum of 3 even numbers and 4 odd numbers is odd.
Reason (R): Sum of two even numbers is even and sum of two odd numbers is also even.
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

IV. Case study base dquestions

28. In a puzzle competition, each team must create 3 × 3 magic square using numbers 1 to 9. One team places 5 at the centre and then fills the remaining numbers, another team mistakenly uses the number 9 twice and forgets to use 3.
(i) What is the magic sum of all numbers from 1 to 9 if used correctly?
(ii) Why is placing 5 at the centre helpful for creating balance in a magic square?
(iii) What mistake did the second team make and why does it effect the property of magic square?
(iv) If one row in their square adds to 19 and the others do not, is it a magic square? Why or why not?

REVISION

1. What is the value of $-14 \times (-60) + 18$?
2. What is the value of $-20 \times (-40) + 50$?
3. Which is greater: $\frac{3}{8}$ or 0.8?
4. Which is greater: $\frac{7}{9}$ or $\frac{7}{11}$?
5. What is $7.2 \div 0.8$?
6. A rectangle has a length of 32.5 cm and a width of 12.4 cm. What is its area? Show your calculation.
7. Convert the decimal 0.450 to a fraction in simplest form.
8. Write $\frac{7}{8}$ as a decimal.