INTERNATIONAL INDIAN SCHOOL

BURAIDAH

Worksheet For The Academic Year 2026-27

CLASS: VIII SUBJECT: Mathematics DATE: 25/10/2026

LESSON-5 Number Play

1. Find the sum of the following consecutive numbers. Is the sum even or odd?

a) 12 + 13 + 14

b) 21 + 22 + 23 + 24

2. Let four consecutive integers be n, n+1, n+2, n+3

a) Show that their sum is always even.

b) What happens to the parity of the sum if n is even. Explain.

3. State whether each expression is always even, always odd, or sometimes even and sometimes odd. Give a reason.

a) (2n+6)

b) (5n+1)

c) (3x+5y)

4. Write the general form of:

a) An even number.

b) An odd number.

c) A number that is a multiple of 4.

d) A number that leaves remainder 2 when divided by 4.

5. Decide whether each statement is always true, sometimes true, or never true. Give an example or explanation.

a) The sum of two even numbers is a multiple of 3.

b) The sum of a multiple of 6 and a multiple of 9 is divisible by 3.

c) A number divisible by 7 is also divisible by every multiple of 7.

6. A number leaves remainder 3 when divided by 5.

a) Write its general algebraic form.

b) What remainder will twice this number leave when divided by 5?

7. Four consecutive integers have a sum of 50. Find the four integers.

8. Find the smallest positive integer that leaves:

- Remainder 2 when divided by 3

- Remainder 3 when divided by 4
- Remainder 4 when divided by 5

9. Two numbers are of the forms (8k+5) and (8m-3), where (k) and (m) are integers.

a) What remainder does each number leave when divided by 8?

b) Is their sum divisible by 8? Explain.

10. Use the divisibility rule for 3 to determine which numbers are divisible by 3.

a) 7,236

b) 45,817

c) 891,045

11. Find the smallest positive multiple of 9 that contains no even digits.

12. Find the multiple of 9 closest to 7,000. Explain your answer.

13. How many multiples of 9 lie strictly between 4,500 and 4,600? Write the first and last such multiples.

14. Determine whether each number is divisible by 3 and by 9.

a) 5,412

b) 7,025

c) 8,136

d) 9,101

15. Use the divisibility rule for 11 to determine whether 4,862 is divisible by 11.

16. Find the remainder when 73,418 is divided by 9. Explain how the digit-sum rule helps.

17. Find the digital root of each number.

a) 58,749

b) 906,888

c) 123,456

18. A number has digital root 7. What will be the digital root of the number obtained by adding 10 to it? Explain your reasoning.

19. For the number 3,276, check divisibility by each of the following numbers. Give a reason for each answer.

2, 3, 4, 6, 8, 9, 10 and 11.

20. Give an example of a number that is divisible by both 4 and 6 but is not divisible by 24. Explain why your example works.

21. Explain why a number that is divisible by both 3 and 8 must be divisible by 24.

22. In the number 5a72b , find all possible pairs of digits (a,b) such that the number is divisible by both 5 and 9.

23. Find all possible values of the digit x , if the number (21x5) is divisible by 9.

24. Find the smallest positive integer that leaves remainder 1 when divided by 2, remainder 2 when divided by 3, and remainder 3 when divided by 4.

25. Find the smallest digit (x) that makes the number (47x2) divisible by 9. Is the resulting number also divisible by 3? Explain.

26. Find all possible digits (a) such that (63a54) is divisible by 11.

27. A five-digit number has the form (4a72b). Find all pairs of digits (a,b) for which the number is divisible by both 5 and 9.

28. Determine whether 12,672 is divisible by each of the following: 3, 4, 8, 9 and 11. Show the rule used for each.

29.Solve: a) 1A $\times$ A = 9 A b) P 5 $\times$ P 3 = 5 7 A c) A B $\times$ 6 = B B B d) A B $\times$ 5 = C A B

30. A three-digit number has the form 5a2. The number is divisible by 3, but not by 9.

Find all possible values of the digit a.

ANSWERS

1. a) odd.

b) even.

2. a) even.

b)The parity of the expression does not change. Therefore, the result remains even.

3. a) (2n+6): Always even

b) (5n+1): Sometimes even and sometimes odd. If (n) is even, the expression is odd; if (n) is odd, it

is even.

c) (3x+5y): Sometimes even and sometimes odd. Its parity depends on the values of (x) and (y).

4. a) Even number: (2n) b) Odd number: (2n+1) c) Multiple of 4: (4n)

d) Number leaving remainder 2 when divided by 4: (4n+2)

5. a) Sometimes true b) Always true c) Sometimes true

6. a) The number is of the form (5n+3).

b) Twice the number is

2(5n+3)=10n+6=5(2n+1)+1

The remainder is 1.

7. The integers are 11, 12, 13 and 14.

8. 59.

9. a) (8k+5) leaves remainder 5. The number (8m-3) also leaves remainder 5 .

b) Their sum is leaves remainder 2, so it is not divisible by 8.

10.a) Yes b) No c) Yes

11. 99

12. 7002

13. 11, first-4509 and last-4599

16. The digit sum is 7+3+4+1+8=23

Since (23=18+5), the remainder when 73,418 is divided by 9 is 5.

18. 8

20. One example is 12.

It is divisible by 4 and 6, but it is not divisible by 24.

22. (a,b)=(4,0) or (8,5).

23. (x=1)

24. 11

25. (x=5), giving 4,752.

26. (a=9).

27 .(a,b)=(5,0),(0,5),(9,5)

29.a) A = 6 b) A = 5 , P = 2 c) A = 7 , B = 4 d) A = 5 , B = 0 , C = 2

30. (a=2).