St. Thomas School, Sahibabad
Work Sheet (2023 – 24)
CLASS: VIII
MATHEMATICS (041)

Time: 3 Hours   **MM: 80**

- This worksheet consists of 38 questions divided into five sections.
- Section A consists of 20 MCQs of one mark each, Section B consists of 5 questions of two marks each, Section C consists of 6 questions of three marks each, Section D consists of 3 case-study based questions of four marks each, Section E consists of 4 questions of five marks each.

SECTION A
(Choose the correct option)

1. The cost of 8 books is ₹300. Then the cost of 18 such books will be   [1]

   (A) ₹202   (B) ₹675   (C)₹ 615   (D) ₹600

2. Three boys can do a piece of work in 2 days. Then one boy can do the work in   [1]

   (A) 1 day   (B) 2 days   (C) 6 days   (D) none of these

3. The lateral surface area of a cube having side 'a' unit is   [1]

   (A) $6a^2$ (B) $4a^2$ (C) $5a^2$ (D) $16a^2$

4. If an edge of a cube becomes doubled, then its surface area will be   [1]

   (A) $12a^2$ (B) $10a^2$ (C) $24a^2$ (D) $48a^2$

5. The number of small cubes of edge 20 cm that can be accommodated in a cubical box of edge   [1]
   2m is
   (A) 1   (B) 10   (C)100   (D)1000

6. The area of four walls of a room whose height is 6m and perimeter 26m will be   [1]

   (A) $\frac{13}{3}$ m   (B) 156 m   (C) 32 m   (D) can't cay

7. The coefficient of a^2 in – $24a^2 bc^2$ is   [1]

   (A) 24c   (B) -24bc   (C) – $24bc^2$ (D) -$24c^2$

8. The usual form of 9.05×10^{-3} is   [1]

   (A) 905   (B) 9050   (C) 0.095003   (D)0.00905

9. The factors of $xy - yz – xz + z^2$ are   [1]

   (A) (x – z) (y – z)   (B) (x - y) (z + x)   (C) (x + y) (z – x)   (D) None of these

10. Agraph which is completely an unbroken line is called   [1]

    (A) a bar graph   (B) Linear graph   (C) Pie chart   (D) line graph

11. The product of 25ab, $6a^2 b c$ and $15b^{-1}c^{-2}$ is   [1]
    (A) -160 (B) $160a^4c^3$ (C) $80a^2 b^2 c^2$ D) None of these

12. The multiplicative inverse of 9^{-10} is   [1]

    (A) 9^{10} (B) -9^{-10} (C) $9^{-\frac{1}{100}}$ (D) (0.9^{100})

13. The standard form of 0.07583 is   [1]

    (A) 0.07583×10^{-1} (B) 0.7583×10^{-3} (C) 7.583×10^{-3} (D) 7.583×10^{-2}

14. The value of $(-12)^3 \div (12)^5$ is   [1]
    (A) $(-12)^2$ (B) -12^{-2} (C) 12^{-2} (D) none of these

15. $ax^2 - bx - c$ is [1]

    (A) a binomial   (B) monomial   (C) trinomial   (D) none of these

16. HCF of $l^2\,m^2\,n$, $l\,m^2\,n$ and $l^2\,mn^2$ is [1]

    (A) m^2 (B) m^2l (C) n^2l (D) $l\,mn$

In Q. 17 and Q. 18 a statement of assertion (A) is followed by a statement of reason (R). Choose the correct option.

17. Assertion (A): A right circular cylinder is a solid with two parallel circular bases. [1]
Reason (R): Volume of cylinder = area of base × height
    (A)   Both A and R are true and R is the correct explanation of A.
    (B)   Both A and R are true and R is not the correct explanation of A.
    (C)   A is true but R is false.
    (D)   A is false but R is true.

18. Assertion (A): The reciprocal of a^2 is a^{-2}. [1]
Reason (R): The product of an exponential number and its multiplicative inverse is 1.
    (A)   Both A and R are true and R is the correct explanation of A.
    (B)   Both A and R are true and R is not the correct explanation of A.
    (C)   A is true but R is false.
    (D)   A is false but R is true.

19. The power notation for - 512 is [1]
    (A) 2^5 (B) 2^6 (C) 2^7 (D) 6^4

20. The value of $(a-1)(a+2)$ is [1]
    (A) $a^2 + a - 2$ (B) $a + 1$ (C) $a - 1$ (D) $a^2 - 1$

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SECTION B
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21. Find the exponential form of $\frac{900}{625}$ using factorisation. [2]

22. Find the value of $\frac{a^2-9}{(a+3)^2}$. [2]

23. A man takes 15 rounds of a garden to cover a distance of 1170 m. Find the distance covered by him in 30 rounds [2]

24. Subtract $12x^3 + 30y^2 - 25$ from $-15x^3 + 6y^2 - 20$. [2]

25. If 2.5 kg of rice contains 7×10^8 grains of rice. Find the grains contained in 4 kg of rice. [2]

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SECTION C
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26. Find the coefficient of x^2 in the product $(x^2-x)(1+2x)$. [3]

27. Factorise: $(x^2 - 1)^2 - 1$ [3]

28. Find the value of a in $3^{2a-4} = 81$. [3]

29. Evaluate using exponential laws: $\frac{32}{125 \times 8} \times 5^{-3}$ [3]

30. The ratio of length, breadth and height of a cuboid is 5 : 3 : 2. Its volume is 3750 cm³. Find its length breadth and height. [3]

31. The line graph below shows the time – distance graph of Raju's walking. Answer the following questions: [3]

(i) What is the line graph about?
(ii) When does Raju makes the least progress?
(iii) Find his average speed in km/hr.
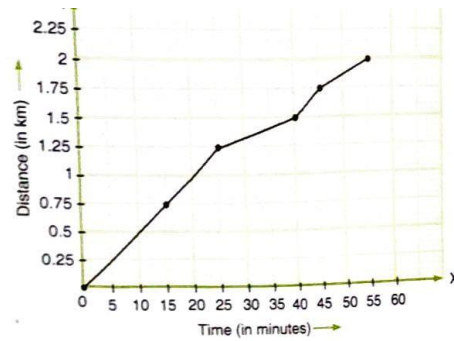
SECTION D
(Case - study based questions)

32. Mohit's monthly salary was ₹5445q. He saved 20% of it and gave half of the remainder to his parents.
(i) How much money Mohit has saved? [2]
(ii) How much money Mohit has given to his parents? [1]
(iii) How much money is left with Mohit? [1]

33. Aakash has bought a cylindrical pencil box of radius 8cm and height 14cm. He wants to cover it with a glaze paper.
(i) Find the area of the glaze paper required to cover the box [2]
(ii) Find the volume of the pencil box. [1]
(iii) If the cost of the glaze paper is one rupee for 10cm², find the cost of the required glaze paper. [1]

34. The following data shows the temperature of Riya who is admitted in a hospital.

Time:	6am	8am	10am	12noon	2pm	4pm
Temperature(in ℃)	36.5	36	37	38	38	37

(i) Draw the graph for the given data. [2]
(ii) What was Riya's temperature at 4 pm? [1]
(iii) What was the temperature difference between 12 noon and 2 pm? [1]

SECTION E

35. Simplify and evaluate: $(13a^2-4) (15b +7)$, when $a = 1$ and $b = -1$ [5]

36. Two cubes of side 6 cm are joined together. Find the total surface area and volume of the resulting solid shape. [5]

37. From the sum of $14x + 25y$ and $-2x – 12y$ subtract $x (y – 6)$ [5]

38. Find the volume and total surface area of a cylindrical can of height 14 m and base radius 8m $[\pi = \frac{22}{7}]$. [5]