JAIPURIA SCHOOLS
PARAO CAMPUS

SETH M. R. JAIPURIA SCHOOLS BANARAS PARAO CAMPUS

PRE MID (2023-24)

Subject – MATHEMATICS

Class – IX

DATE: - / /

TIME – 1 hr 30 mins

M.M. – 40

Name - _____ Roll No- ___ Section- ___ I.Sign._____

General Instructions:-

(i) All questions are compulsory.
(ii) Marks are given against each question.
(iii) All answers should be written in the answer sheet provided.
(iv) Number of printed pages - 2
(v) Attach the map/graph in between the answer sheet.
(vi) Calculators are not allowed.

SECTION –A **(1×10=10)**

1) Which of the following is irrational?
(A) $\sqrt{4}/3$ (B) $\sqrt{12/3}$ (C) $\sqrt{7}$ (D) $\sqrt{81}$

2) The product of any two irrational numbers is
(A) always an irrational number (B) always a rational number
(C) always an integer (D) sometimes rational, sometimes irrational

3) $2\sqrt{3}+\sqrt{3}$ is equal to
(A) $2\sqrt{6}$ (B) 6 (C) $3\sqrt{3}$ (D) $4\sqrt{6}$

4) $\sqrt[4]{(81)^{-2}}$ is equal to:-
(A) $\frac{1}{9}$ (B) $\frac{1}{3}$ (C) 9 (D) $\frac{1}{81}$

5) The equation $2x + 5y = 7$ has a unique solution, if x, y are :
(A) Natural numbers (B) Positive real numbers (C) Real numbers (D) Rational numbers

6) $x = 5, y = 2$ is a solution of the linear equation
(A) $x + 2y = 7$ (B) $5x + 2y = 7$ (C) $x + y = 7$ (D) $5x + y = 7$

7) How many linear equations in x and y can be satisfied by $x = 1$ and $y = 2$?
(A)Only one (B) Two (C) Infinitely many (D) Three

8) If one of the angles of a triangle is 130°, then the angle between the bisectors of the other two angles can be:-
(A) 50° (B) 65° (C) 145° (D) 155°

9) A line joining two endpoints is called:
(A) Line segment (B) A ray (C) Parallel lines (D) Intersecting lines

10) Assertion: If $x = 2, y = 1$ is a solution of the equation $2x + 3y = k$, then the value of k is 7.
Reason: The solution of the line will satisfy the equation of the line.
(A) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion
(B) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.
(C) assertion is true but the reason is false
(D) both assertion and reason are false

SECTION –B **(2×3=6)**

11) Classify the following numbers as rational or irrational with justification :
(i) 10.124124... (ii) $(1+\sqrt{5}) - (7-\sqrt{5})$

12) Locate $\sqrt{10}$ on the number line.

13) If the point (2,1) lies on the graph of $3y = ax - 7$, then find the value of a.

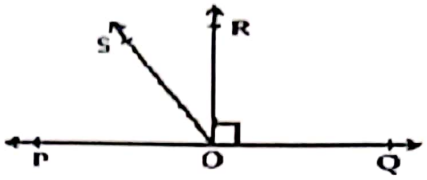
SECTION –C **(3×2=6)**

14) Rationalise the denominator of the following:
(i) $\frac{3\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ (ii) $\frac{16}{\sqrt{41}-5}$

OR

If $a = 2+\sqrt{3}$, then find the value of $a-\frac{1}{a}$.

15) In the Figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that $\angle ROS = 1/2(\angle QOS - \angle POS)$.



SECTION –D (4×2=8)

Case study based questions:-

16) Deepak bought 3 notebooks and 2 pens for Rs. 80. His friend Ram said that price of each notebook could be Rs. 25. Then three notebooks would cost Rs.75, the two pens would cost Rs.5 and each pen could be for Rs. 2.50. Another friend Ajay felt that Rs. 2.50 for one pen was too little. It should be at least Rs. 16. Then the price of each notebook would also be Rs.16.

Lohith also bought the same types of notebooks and pens as Aditya. He paid 110 for 4 notebooks and 3 pens. Later, Deepak guess the cost of one pen is Rs. 10 and Lohith guess the cost of one notebook is Rs. 30.

(i) Form the pair of linear equations in two variables from this situation by taking cost of one notebook as Rs. x and cost of one pen as Rs. y.

(ii) Which is the solution satisfying both the equations formed in (i)?

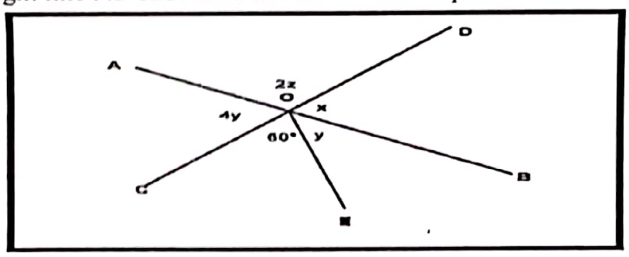
(a) x = 10, y = 20 (b) x = 20, y = 10

(c) x = 15, y = 15 (d) none of these

(iii) Find whose estimation is correct in the given statement.

(a) Deepak (b) Lohith (c) Ram (d) Ajay

17) Maths teacher draws a straight line AB shown on the blackboard as per the following figure.



1. Now he told Raju to draw another line CD as in the figure
2. The teacher told Ajay to mark $\angle AOD$ as 2z
3. Suraj was told to mark $\angle AOC$ as 4y
4. Clive Made and angle $\angle COE = 60°$
5. Peter marked $\angle BOE$ and $\angle BOD$ as y and x respectively

Now answer the following questions:

(1) What is the value of x?

(2) What is the value of y?

(3) What should be the value of x + 2z?

SECTION-E (5×2=10)

18) If $x = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ and $y = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ then find the value of $x^2 + y^2$.

OR

Find the value of $\frac{4}{(216)^{-2/3}} + \frac{1}{(256)^{-3/4}} + \frac{2}{(243)^{-1/5}}$

19) If two lines intersect, prove that the vertically opposite angles are equal.

OR

A transversal intersects two parallel lines. Prove that the bisectors of any pair of corresponding angles so formed are parallel.