SETH M.R. JAIPURIA SCHOOLS BANARAS PARAO CAMPUS

SUBJECT – MATHEMATICS

CLASS – X (REVISION SHEET FOR PRE-MID)

1. The least number which is a perfect square and is divisible by each of 16,20 and 50, is:
   (A) 1200 (B) 100 (C) 3600 (D) 2400

2. The sum of the exponents of prime factors in the prime factorisation of 4004 is:
   (A) 5 (B) 4 (C) 3 (D) 2

3. The line represented by the equation $x - y = 0$ is:
   (A) parallel to x -axis (B) parallel to y -axis (C) passing through the origin
   (D) passing through the point (3,2)

4. The HCF of 40,110 and 360 is:
   (A) 40 (B) 110 (C) 360 (D) 10

5. The sum of the zeroes of the polynomial $p(x) = 5x - 7x^2 + 3$ is:
   (A) $\frac{-7}{5}$ (B) $\frac{7}{5}$ (C) $\frac{5}{7}$ (D) $\frac{-5}{7}$

6. What will be the nature of the roots of the quadratic equation 5x2 – 11x = - 13?
   A) Imaginary B) Real C) Irrational D) Equal

7. If -4 is a zero of the polynomial $p(x) = x^2 - x - (2 + 2k)$, then the value of k is:
   (A) 3 (B) 9 (C) 6 (D) -9

8. The quadratic equation whose roots are 7 and $\frac{1}{7}$ is:
   (A) $7x^2 - 50x + 7 = 0$ (B) $7x^2 - 50x + 1 = 0$
   (C) $7x^2 + 50x - 7 = 0$ (D) $7x^2 + 50x - 1 = 0$

9. The quadratic equation whose sum and product of roots are ' a ' and ' $\frac{1}{a}$, respectively is:
   (A) $ax^2 - ax + 1 = 0$ (B) $ax^2 - a^2x + 1 = 0$
   (C) $ax^2 + ax + 1 = 0$ (D) $ax^2 + a^2x - 1 = 0$

10. A. Both A and R are true and R is the correct explanation of A.
    B. Both A and R are true but R is not the correct explanation of A.
    C. A is true but R is false.
    D. A is false but R is true.
    Assertion (A): The pair of linear equations $px + 3y + 59 = 0$ and $2x + 6y + 118 = 0$ will have infinitely many solutions if $p = 1$.
    Reason (R): If the pair of linear equations $px + 3y + 19 = 0$ and $2x + 6y + 157 = 0$ has a unique solution, then $p \neq 1$.

2 MARKERS

11. If p and q are zeroes of the polynomial $p(y) = 21y^2 - y - 2$, then find the value of $(1 - p) \cdot (1 - q)$.
12. If the zeroes of the polynomial $x^2 + ax + b$ are in the ratio 3: 4, then prove that $12a^2 = 49$ b.
13. (a) The sum of the areas of two squares is 52 cm^2 and difference of their perimeters is 8 cm. Find the lengths of the sides of the two squares.

    OR

    (b) The time taken by a person to travel an upward distance of 150 km was $2\frac{1}{2}$ hours more than the time taken in the downward return journey. If he returned at a speed of 10 km/h more than the speed while going up, find the speeds in each direction.

3 MARKERS

14. Prove that $\sqrt{5}$ is an irrational number.
15. Prove that $\left(5\sqrt{3}+\frac{2}{3}\right)$ is an irrational number given that $\sqrt{3}$ is an irrational number.
16. (a) The perimeter of a right triangle is 60 cm and its hypotenuse is 25 cm. Find the lengths of other two sides of the triangle.

OR

(b) A train travels a distance of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance. Find the speed of the train.

CASE STUDY-I

17. A school is organizing a grand cultural event to show the talent of its students. To accommodate the

guests, the school plans to rent chairs and tables from a local supplier. It finds that rent for each chair is ₹ 50 and for each table is ₹ 200. The school spends ₹ 30,000 for renting the chairs and tables. Also, the total number of items (chairs and tables) rented are 300.

If the school rents ' x ' chairs and ' y ' tables, answer the following questions:
(i) Write down the pair of linear equations representing the given information.
(ii) (a) Find the number of chairs and number of tables rented by the school.

OR

(b) If the school wants to spend a maximum of ₹ 27,000 on 300 items (tables and chairs), then find the number of chairs and tables it can rent.
(iii) What is maximum number of tables that can be rented in ₹ 30,000 if no chairs are rented?