

Paper Prepared by

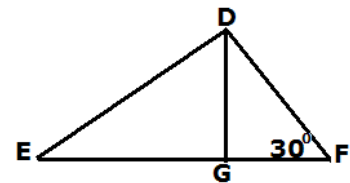
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1. If $HCF(252, 756) = 252$, find their LCM.
2. Polynomial $4x^2 + 16$ has _____ real zeros.
3. For what value of 'k' will the equations $9x + ky = k - 3$ and $kx + 4y = 2$ represent intersecting lines?

4. In fig, $DG \perp EF$, $EF^2 - DF^2 = DE^2$. If $\angle F = 30^\circ$, Find $\angle EDG$

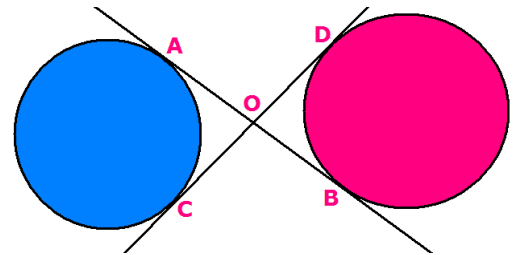


5. In figure 2, find the length of AB if $CD = 15$ cm.

6. Find mode if mean = 35 and median = 37

7. If three coins are tossed simultaneously, find the Probability of getting exactly two heads.

8. If five times the fifth term of an AP is seven times the seventh term, find the 12th term.



9. If $\sin A = \cos 2A$. Find A $[0^\circ \leq A \leq 90^\circ]$

10. A square is inscribed in a circle. Find circumference of circle if side of square is 10 cm. Leave your answer in π

Section B 2 marks each

11. Find the coordinates of point P on DE if $DP = \frac{2}{5} DE$, given $D(1, 2)$ and $E(4, 5)$.
12. ΔDEF is right angled at F. Let $DE = f$, $EF = d$ and $FD = e$. g is the length of the perpendicular from F to DE. Prove that $\frac{1}{g^2} = \frac{1}{d^2} + \frac{1}{e^2}$

13. Solve for x and y: $217x + 131y = 913$ and $131x + 217y = 827$
14. Find the probability of getting 5 Sundays in the month of January.
15. Prove $-1 - 2\sqrt{5}$ is irrational.

Section C 3 marks each

16. Prove $\frac{1}{\operatorname{coec}A - \cot A} - \frac{1}{\sin A} = \frac{1}{\sin A} - \frac{1}{\operatorname{coec}A + \cot A}$
17. Find the coordinates of points whose distance from P (0,5) is 5 units and from Q (0,1) is 3 units
18. Find trigonometric ratios of 45°
19. For what values of k will $2kx^2 + 5x + 8k = 0$ have real roots?
20. Find the area of ΔABC , midpoints of whose sides AB, BC and CA are D(4,1), E(6, 4) and F(3, 4) respectively.
21. If α and β are the zeroes of a quadratic polynomial. $\alpha + \beta = 7$ and $\alpha\beta = 10$.
Find $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$
22. Prove that the opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.
23. Draw a triangle with sides AB = 3 cm, BC = 4 cm and CA = 5 cm. Draw another triangle similar to given triangle and with sides 2.5 times the given triangle.
24. A grassy plot is in the form of a quadrilateral with sides A(2, 12), B(8, 4), C(20, 20) and D(12, 24). One cow is tied at each vertex of the plot with a rope of length 3.5 m. Find area which can be grazed by the 4 cows. Also find ungrazed area.
25. Find sum of all 3 digit numbers divisible by both 3 and 5.

Section D 6 marks each

26. State and prove Converse of Basic Proportionality Theorem. Using it check if DE || BC given AD = 7cm, DB = 14cm, AE = 1.75 cm and EC = 3.5 cm.

27. There are two class rooms A and B. If 10 students are sent from A to B, the number of students in each room become the same. If 20 students are sent from B to A, the number of students in A becomes double the number of students in B. Find the number of students in each class room.
28. The angles of elevation of the top of a tower from the points P and Q at distances of a and b respectively, from the base and in the same straight line with it are complementary. Prove that the height of tower is \sqrt{ab}
29. A hollow cone is cut by a plane parallel to the base and the upper portion is removed. If the curved surface of the remainder is $\frac{8}{9}$ of the curved surface of the whole cone, find the ratio of the line segments into which the cone's altitude is divided by the plane.
30. Draw a less than ogive and a more than ogive for the following data and find the median from the graph. Verify the result by using the formula.

Marks more than or equal to	0	20	40	60	80
No. of students	60	55	28	15	7

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