

CBSE Guess Paper
Class: X
Mathematics

- 1 Simplify $1/(x-1) - 1/(x+1) - 2/(x^2+1) - 4/(x^4+1)$
2. Solve the following system of linear equation
 $(a-b)x + (a+b)y = a^2 - 2ab - b^2$
 $(a+b)(x+y) = a^2 + b^2$
3. Two right triangles ABC and DBC are drawn on the same hypotenuse BC and on the same side of BC , if AC and DB intersect at P. Prove that $AP \times PC = BP \times PD$
4. A radio is available for Rs.1500 cash or Rs.300 as cash down payment followed by 3 equal monthly installments of Rs.420. Find the rate of the interest charged under the installment scheme.
5. A loan for Rs.21200 has to be repaid in two equal annual installments. If the interest rate is 12% per annum compounded annually, find the amount for each installment.
6. 300 apples are distributed equally among a certain no. of students. If there be 10 more students , each would had have received one apple less. Find the no. of students.
7. Reduce the following rational expression in to lowest form.
 $(x^4 - 10x^2 + 9) / (x^3 + 4x^2 + 3x)$
8. The angles of a triangle are in AP. If the greatest angle equals the sum of the other two , find the angles.
9. In a triangle ABC AD is perpendicular on BC . Prove that $AB^2 + CD^2 = AC^2 + BD^2$
10. How many terms of the sequence 18,16,14..... should be taken so that their sum is zero.
11. Solve for x :
 $9\{x^2 + 1/x^2\} - 9\{x + 1/x\} - 52 = 0$
12. Construct triangle ABC in which BC = 6 cm , angle A = 60° and the altitude through A to 4.5 cm. Measure the length of the median through A. Write the steps of construction.

13. Without using the trigonometric tables evaluate the following :
 $\{\sin 47^\circ / \cos 43^\circ\}^2 + \{\cos 43^\circ / \sin 47^\circ\}^2 - 2 \cos^2 45^\circ$

14. Three cubes each of sides 5 cm are joined end to end. Find the surface area of the resulting solid.

15. Solve the following system of linear equations graphically :
 $3x + y + 1 = 0$, $2x - 3y + 8 = 0$
 Shed the region bonded by the lines and x axis .

16. The vertices of a triangle are A(3,4) , B(7,2) and C (-2,-5). Find the length of the median through the vertex B.

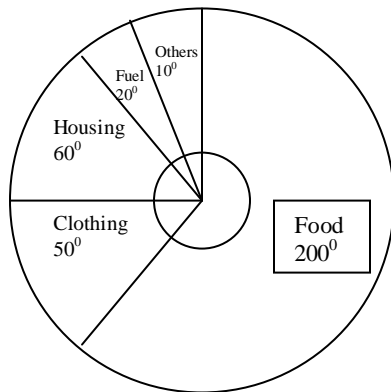
17. In what ratio does the point (1/2, 6) divide the line segment joining the points (3,5) and (-7,9).

18. Find the probability that the leap year selected at random will contain 53 Sundays .

19. Find the mean of the following data.

Class interval	Frequency
0-8	5
8-16	9
16-24	10
24-32	8
32-40	8

20. The following pie chart represents the expenditure of a family on different items. Find the % expenditure on different items by reading the pie chart.



21. ABCD is a quadrilateral in which $AB=AD$, the bisector of angle BAC and angle CAD intersect the sides BC and CD at the points E and F respectively. Prove that EF parallel to BD.
- 22.A circle touches the sides of quadrilateral ABCD at P, Q,R,S respectively .Show that the angles subtended at the center by a pair of opposite sides are supplementary.
23. The angle of elevation of cloud from a point 200 mtr above the lake is 30° and the angle of depression of the reflection of cloud in the lake is 60° .Find the height of cloud.
- 24.If the radii of the ends of a bucket 45cm high are 28cm and 7cm.Find its capacity and surface area.