



MATHS

BOOKS - VK GLOBAL PUBLICATION

MATHS (HINGLISH)

MODEL QUESTION PAPER -7

Section A

1. Write 98 as product of its prime factors.



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2. Write the zeros of the polynomial $x^2 - x - 6$

.



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3. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$, and

without drawing them, find out whether the

lines representing the following pairs of linear

equations intersect at a point, are parallel or

coincide: $5x - 4y + 8 = 0$; $7x + 6y - 9 = 0$

(ii) $9x + 3y + 12 = 0$; $18x + 6y + 24 = 0$ (iii)

$6x - 3y + 10 = 0$; $2x - y + 9 = 0$



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4. Which term of the AP 21, 42, 63, 84,.. Is 210?



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5. Two concentric circles of radii a and b ($a > b$) are given. Find the length of the chord of the larger circle which touches the smaller circle.

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6. The probability that a non-leap year selected at random will contain 53 Sunday is

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Section B

1. Is $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ a composite number? Justify your answer.

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2. Divide $3x^2 - x^3 - 3x + 5$ by $x - 1 - x^2$ and find the quotient and the remainder.



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3. Solve: $x^2 - (\sqrt{3} + 1)x + \sqrt{3} = 0$



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4. Consider $\triangle ACB$, right-angled at C, in which $AB = 29$ units, $BC = 21$ units and $\angle ABC = \theta$. Determine the values of (i) $\cos^2 \theta + \sin^2 \theta$ (ii) $\cos^2 \theta \sin^2 \theta$



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5. Evaluate $\frac{\cos 45^\circ}{\sec 30^\circ + \cos 30^\circ}$



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6. A car has two wipers which do not overlap. Each wiper has a blade of length 25 cm sweeping through an angle of 115° . Find the total area cleaned at each sweep of the blades.



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Section C

1. The LCM of two numbers is 14 times their HCF. The sum of their HCF and LCM is 600. If one number is 280, then find the other number.



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2. If α, β are zeroes of the polynomial $x^2 - 2x - 15$, then form a quadratic polynomial whose zeroes are (2α) and (2β) .



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3. Aprajita taught some children of slum areas for certain days. Then she organised a test for them in which she awarded one mark for each correct answer and deducted $\frac{1}{2}$ mark for each

wrong answer. A child answered 80 questions and got 68 marks. How many questions did he answer correctly?



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4. If four numbers in A.P. are such that their sum is 50 and the greatest number is 4 times the least, then the numbers are (a) 5, 10, 15, 20 (b) 4, 10, 16, 22 (c) 3, 7, 11, 15 (d) none of these



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5. Let P and Q be the points of trisection of the line segment joining the points A(2, -2) and B(-7, 4) such that P is nearer to A. Find the coordinates of P and Q.



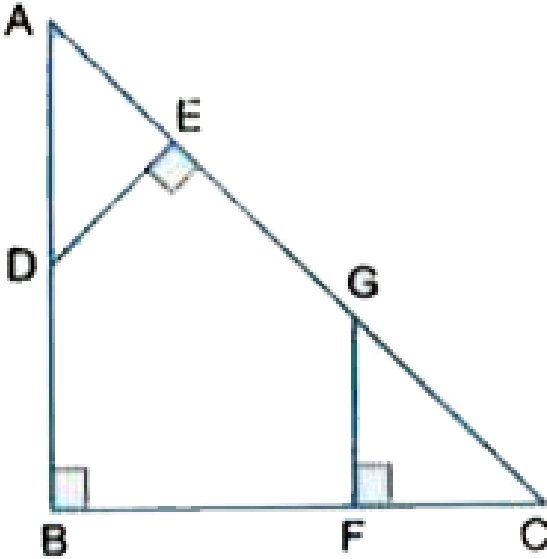
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6. Find the area of a rhombus if its vertices are $(3, 0)$, $(4, 5)$, $(-1, 4)$ and $(2, 1)$ taken in order.



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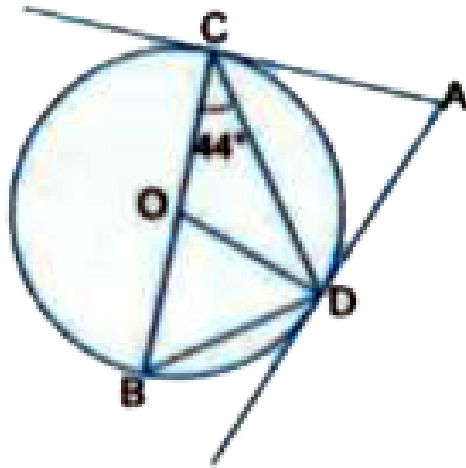
7. In the given fig; $AB \perp BC$, $FG \perp BC$, and $DE \perp AC$. Prove that $\triangle ADE \sim \triangle GCF$.



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8. In Fig. AC and AD are tangent to a circle at C and D respectively. If $\angle BCD = 44^\circ$, then find

$\angle CAD$, $\angle ADC$, $\angle CBD$ and $\angle ACD$.



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9. The median of the distribution given below is 14.4. Find the values of x and y , if the total frequency is 20.

Class Interval	0-6	6-12	12-18	18-24	24-30
Frequency	4	x	5	y	1



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10. A bag contains 24 balls of which x are red, $2x$ are white and $3x$ are blue. A ball is selected at random. What is the probability that it is

(i) not red? (ii) white



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Section D

1. Two types of water tankers are available in a shop. One is in cubic form of dimensions $1\text{ m} \times 1\text{ m} \times 1\text{ m}$ and another is in cylindrical form of diameter 1 m and height 1 m .

(i) Calculate the volume of both the tankers.

(ii) The shopkeeper advises you to purchase a cuboid tank. Which value is depicted by the shopkeeper?



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2. A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the differences of its distances from two diametrically opposite fixed gates A and B on the boundary is 7 metres. Is it possible t



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3. Theorem 6.9 : In a triangle, if square of one side is equal to the sum of the squares of the

other two sides, then the angle opposite the first side is a right angle.



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4. Draw a triangle ABC with side $BC = 6$ cm, $AB = 5$ cm and $\angle ABC = 60^\circ$. Then construct a triangle whose sides are $\frac{3}{4}$ of the corresponding sides of the triangle ABC.



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5. Prove that:-

$$\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta} = 1 + \sec \theta \cdot \operatorname{cosec} \theta$$



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6. The angles of depression of the top and the bottom of an 8 m tall building from the top of a multi-storeyed building are 30° and 45° , respectively. Find the height of the multi-storeyed building and the distance between the two buildings.



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7. From each corner of a square of side 4 cm a quadrant of a circle of radius 1 cm is cut and also a circle of diameter 2 cm is cut as shown in Fig. 12.23. Find the area of the remaining portion of the square.



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8. The following table gives production yield per hectare of wheat of 100 farms of a village.

Production yield (in kg/hect)	50-55	55-60	60-65	65-70	70-75	75-80
Number of farms	2	8	12	24	38	16

Find the mean production.



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