



MATHS

BOOKS - VK GLOBAL PUBLICATION

MATHS (HINGLISH)

MODEL QUESTION PAPER-5

[UNSOLVED]

Section A

1. Given that $\text{HCF}(306, 657) = 9$. Find $\text{LCM}(306, 657)$



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2. In polynomial $x^2 + 7x + 10$. if α, β are its zeros then find $\alpha + \beta$ and $\alpha\beta$.



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3. Q. For what value of k will $k+9$, $2k-1$ and $2k+7$ are the consecutive terms of an A.P.



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4. The cost of 2 kg of apples and 1kg of grapes on a day was found to be Rs 160. After a month, the cost of 4 kg of apples and 2 kg of grapes is Rs 300. Represent the situation algebraically and geometrically.



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5. Find the distance between two parallel tangents of a circle of radius 3 cm.



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6. In a simultaneous toss of two coins, find the probability of getting: exactly one head



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1. Use Euclid's division algorithm to find the HCF of 455 and 42.



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2. Find the zeros of the polynomial $x^2 - 3$ and verify the relationship $\alpha + \beta = -\frac{b}{a}$ if α, β are its zeros.



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3. Find the roots of the equation

$$x + \sqrt{x - 2} = 4$$



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4. In $\triangle ABC$, right angled at

B , $AB = 24\text{cm}$. $BC = 7\text{cm}$. Determine

$\sin A$.



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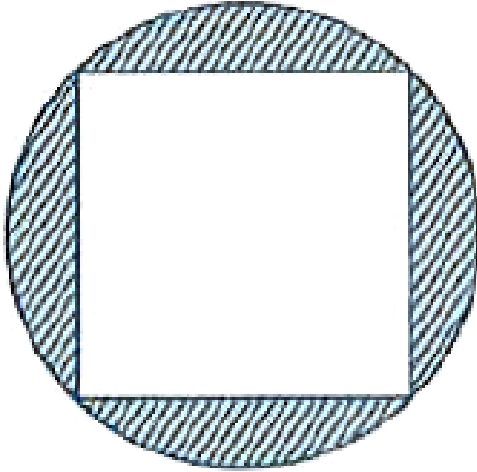
5. In $\triangle ABC$, right angled at B . If $\tan A = \frac{1}{\sqrt{3}}$, find the value of $\sin A \cdot \cos C + \cos A \sin C$.



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6. In Fig 1, a square of diagonal 8 cm is inserted in a circle. Find the area of the shaded

region.



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7. Prove that $3 - \sqrt{5}$ is an irrational number



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Section C

1. If α and β are the zeros of the quadratic polynomial $p(s) = 3s^2 - 6s + 4$, find the value of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta$.



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2. Represent the following system of linear equations graphically:

$$3x + y - 5 = 0, 2x - y - 5 = 0.$$

From the graph, find the points where the lines intersect y-axis.



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3. The sum of 5th and 9th term of an A.P. is 72 and the sum of 7th and 12th terms is 97 . Find that



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4. If the points $A(2,4)$ is equidistant from $P(3,8)$ and $Q(-10,y)$, then find the value of y . Also, find distance PQ .



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5. Prove that the points $(-3, 0)$, $(1, -3)$ and $(4, 1)$ are the vertices of an isosceles right-angled triangle. Find the area of this triangle.



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6. Two triangles ABC and DBC are on the same base BC and on the same side of BC in which $\angle A = \angle D = 90^\circ$. If CA and BD meet each other at E , show that $AE \cdot EC = BE \cdot ED$.



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7. At one end A of a diameter AB of a circle of radius 5 cm, tangent xy is drawn to the circle. Find the length of the chord cd parallel to XY and at a distance 8 cm from A .



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8. Two dice are thrown simultaneously. What is the probability that the sum of the number appearing on the dice is

(i) 7? (ii) a prime number? (iii) 1?



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9. Find the median of the following data.

| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|-----------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Frequency | 5 | 3 | 4 | 3 | 3 | 4 | 7 | 9 | 7 | 8 |



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Section D

1. An aeroplane takes 1 hour less for a journey of 1200 km if its speed is increased by 100 km/hr from its usual speed. Find its usual speed.



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2. Sides AB and AC and median AD of a triangle ABC are respectively proportional to sides PQ and PR and median PM of another triangle PQR . Show that $\Delta ABC \sim \Delta PQR$.



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3. Draw an isosceles ΔABC with base $BC = 6\text{cm}$. $AB = AC$ and $\angle A = 90^\circ$.

Draw another similar triangle whose sides are

$\frac{4}{5}$ times of the sides of $\triangle ABC$. Justify your construction.



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4. If $\sec \theta + \tan \theta = p$, prove that

$$\sin \theta = \frac{p^2 - 1}{p^2 + 1}$$



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5. The angle of elevation of the top of a tower at a point on the level ground is 30° . After

walking a distance of 100 m towards the foot of the tower along the horizontal line through the foot of the tower on the same level ground, the angle of elevation of the top of the tower is 60° . Find the height of the tower.



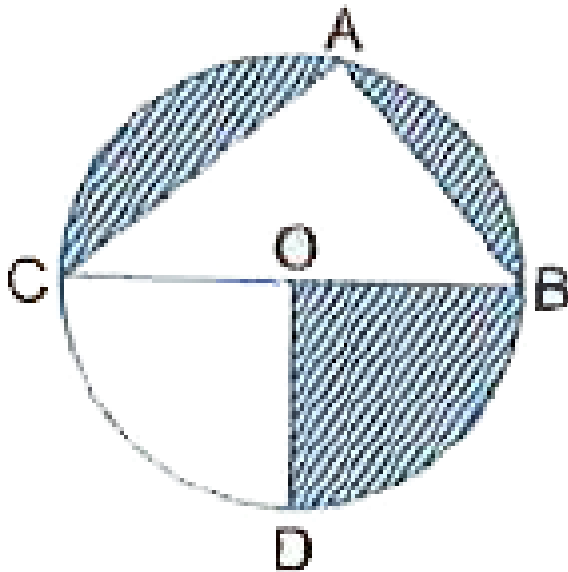
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6. In the given Fig, O is the centre of the circle with

$$AC = 24\text{cm}, AB = 7\text{cm} \text{ and } \angle BOD = 90^\circ$$

. Find the area of the shaded region [Take

$$\pi = 3.14]$$



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7. The interior of the building is in the form of a right circular cylinder of radius 7m and height 6m, surmounted by a right circular

cone of the same radius and of vertical angle 60° . Find the cost of painting the building from inside at the rate of Rs $30/m^2$



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8. Find the mean, mode and median of the following data:

| | | | | | | | |
|-----------|------|-------|-------|-------|-------|-------|-------|
| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
| Frequency | 5 | 10 | 18 | 30 | 20 | 12 | 5 |



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