



## MATHS

### BOOKS - UNIQUE MATHS (HINGLISH)

#### MODEL QUESTION PAPER

Solve The Following Questions Any Four

1. Multiply :  $2\sqrt{12} \times \sqrt{3}$



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2. Find the geometric mean of 4 and 25.



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3. Find  $x$  if  $x+y=5$  and  $x-y=7$



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4. The estimated tax on the income of Shreemati Hinduja is Rs. 8000. How much education cess has she to pay at 3%



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5. Find the class-mark of 80-90.



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**Solve The Following Questions Any Two**

1. Factorise :  $x^2 + 5x + 6$

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2. The sum of two natural numbers is 20 and their difference is 4. find the numbers.

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3. In parallelogram PQRS,  $\angle R = 60^\circ$ . Find the ratio  $\angle R : \angle Q$ .

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4. Two coins are tossed simultaneously. Find the probability of getting at least one head.

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5. If the roots of  $2x^2 - 6x + k = 0$  are real and equal, find  $k$ .

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6. Solve the following simultaneous equations.

$$101x + 99y = 501, 99x + 101y = 499$$

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7. The following table shows the percentage of vehicles passing a signal. Find out the measures of the central angles to show the information by a pie diagram. Hence draw the pie diagram.

Types of vehicle	Bicycle	Two wheeler	Car	Bus	Rickshaw
Percentage	10	30	20	20	20



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8. Kriti purchased 100 shares, each of face value 100 when the market price was Rupee 45. She paid 2%, brokerage. If the rate of GST on the brokerage is 18%, find the total amount she spent.



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9. There are 25 rows of seats in an auditorium. The first row is of 20 seats, the second of 22 seats, the third of 24 seats and so on. How many seats are there in the 21st row?



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[Choose The Correct Alternative](#)

1. For simultaneous equations in  $x$  and  $y$ , if  $D_x = 25$ ,  $D_y = 50$  and  $D = 5$ , then what is the value of  $x$ ?

A.  $-5$

B.  $\frac{1}{5}$

C.  $10$

D.  $5$

**Answer:**

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2. Which of the following is a quadratic equation?

A.  $6x^2 = 20x - (2)$

B.  $x^2 \left( \frac{1}{x} - 2 \right) = \frac{7}{2}$

C.  $\frac{3}{x} - 3 = 4x^2$

D.  $5x + 7 = 3x$

**Answer:**

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3. In an A.P.,  $d=10$  find  $t_6 - t_2$

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4. The rate of GST on stainless steel is 18%, of which the share of a state government is .....

(A) 18% (B) 9% (C) 36%

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## Solve The Following Questions Any Three

1. Solve the following quadratic equations by factorisation method :

$$7y = -3y^2 - 4$$



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2. In a game of chance, the spinning arrow rests at one of the numbers 1,2,3,4,5,6,7,8. All these are equally likely outcomes. Find the probability of the following events:

(a) The arrow rests at an odd number.

It rests at a prime number.

It rests at a multiple of 2.



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3. Find the sum of all natural numbers between 1 and 145 which are divisible by 4.

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### Solve The Following Questions Any One

1. Six years before, the age of mother was numerically equal to the square of son's age. Three years hence, her age will be thrice the age of her son then. Find the present ages of the mother and son.

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2. Draw the graph of  $x + y = 6$  which intersects the X-axis and Y-axis at A and B respectively. Find the length of segment AB. Find the area of  $\triangle AOB$ , where point  $O$  is the origin.

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3. The market value of a mutual fund is Rs 400 crore which is divided into 8 crore units

(a) suppose you invest Rs 10000 in the units how many units will you get ?

(b) While selling the units if their market value is increased by 10% how much amount will you get by selling them ?

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1. Point M is the mid point of seg AB and AB = 14 unit then AM =?



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2. If  $\triangle ABC \sim \triangle XYZ$  then complete the following brackets.

$$\frac{AB}{XY} = \frac{\square}{YZ} = \frac{AC}{\square}$$



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3. Draw  $\angle ABC = 115^\circ$ , construct its bisector



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4. Write the equation of x-axis and y-axis .



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5. Radius of a sphere is 14 cm. Find the surface area of the sphere.



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6. The ratio of corresponding sides of similar triangles is 5:7, then what is the ratio of their areas?

A. 25:49

B. 49:25

C. 5:7

D. 7:5

**Answer:**



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7. What is the total surface area of a solid hemisphere whose radius is  $r$ ?

A.  $4\pi r^2$

B.  $\pi r^2$

C.  $2\pi r^2$

D.  $3\pi r^2$

**Answer: D**



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8. Find the length of the hypotenuse in a right angled triangle where the sum of the squares of the sides making right angle is

169.

A. 15

B. 13

C. 5

D. 12

**Answer:**



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**9.** How many common tangents can be drawn to two circles, touching each other externally?

A. One

B. Two

C. Three

D. Four

**Answer:**



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**10.** Find the length of the hypotenuse of a square whose side is 16 cm



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**11.** Radius of a sector of a circle is 21 cm. If length of arc of that sector is 55 cm, find the area of the sector.



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12. A tank of cylindrical shape has radius 2.8 m and its height 3.5 m. Complete the activity to find how many litres of water the tank will contain.

Capacity of water tank = Volume of cylindrical tank

$$= \pi r^2 h$$

$$= \frac{22}{7} \times 2.8 \times 2.8 \times \square$$

$$= \square m^3$$

$$= \square \times 1000 \text{litre}$$

$$= \square \text{litre}$$



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13. If  $\sec \theta = \frac{25}{7}$ , then find  $\tan \theta$



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14. Prove that, in a right-angled triangle, the square of hypotenuse is equal to the sum of the square of remaining two sides.

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15. Show that points A (-4, -7), B (-1,2) , C (8,5) and D(5,-4) are the vertices of rhombus ABCD.

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16. A storm broke a tree and the treetop rested 20 m from the base of the tree, making an angle of  $60^\circ$  with the horizontal. Find the height of the tree.

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17. AB and AC are two chords of a circle of radius  $r$  such that  $AB=2AC$ . If  $p$  and  $q$  are the distances of AB and AC from the centre Prove that  $4q^2 = p^2 + 3r^2$ .

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18.  $\triangle SHR \sim \triangle SVU$ . In  $\triangle SHR$ ,  $SH = 4.5\text{cm}$ ,  $HR = 5.2\text{cm}$ ,  $SR = 5.8\text{cm}$  and  $\frac{SH}{SV} = \frac{3}{5}$  construct  $\triangle SVU$ .

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19. Radius of circular base of an ear of corn is 6.6 cm and its length is 11.2 cm . If on an average 1 sq cm area contains 2 corn kernels , find the total number of kernels on a corn

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