



MATHS

BOOKS - OSWAAL PUBLICATION

MATHS (KANNADA ENGLISH)

KARNATAKA SECONDARY EDUCATION

EXAMINATION BOARD (MODEL

QUESTION PAPER)

Question

1. The distance between two points

$p(x_1, y_1)$ and $q(x_2, y_2)$ is given be :

A. $\sqrt{(x_1 + x_2)^2 + (y_1 + y_2)^2}$

B. $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

C. $\sqrt{(x_1 - x_2) - (y_1 - y_2)}$

D. $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

Answer:



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2. The degree of polynomial

$$p(x) = x^2 - 3x + 4x^3 - 6 \text{ is :}$$

A. 2

B. 1

C. 3

D. 6

Answer:



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3. Which one of the following cannot be the probability of an event :

A. $\frac{2}{3}$

B. -1.5

C. 19%

D. 0.7

Answer:



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4. Write the formula to calculate the curved surface area of the frustum of a cone .

A. $\pi(r_1 + r_2)l$

B. $\pi(r_1 + r_2)h$

C. $\pi(r_1 - r_2)l$

D. $\pi(r_1 - r_2)h$

Answer:



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5. The solution for the equations

$x + y = 10$ and $x - y = 2$ are :

A. $x = 6$
 $y = 4$

B. $x = 4$
 $y = 6$

C. $x = 7$
 $y = 3$

D. $x = 8$
 $y = 2$

Answer:



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6. In the adjoining figure, TP and TQ are the tangents to the circle with center O. The measure of $\angle PTQ$ is :



A. 90°

B. 110°

C. 70°

D. 40°

Answer:



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7. The Coordinates of origin are :

A. (1,1)

B. (2,2)

C. (0,0)

D. (3,3)

Answer:



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8. If the discriminant of quadratic equation

$b^2 - 4ac = 0$, then roots are :

A. Real and distinct

B. Roots are equal

C. No real roots

D. Roots are unequal and irrational

Answer:



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9. State "Basic proportionality theorem"



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10. State Euclid's division lemma.



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11. Find the distance between the point $p(3,4)$ and the origin.



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12. (i) Express each as a product of its prime

factors: 140

(ii) Express each as a product of its prime

factors: 156

(iii) Express each as a product of its prime

factors: 3825

(iv) Express each as a product of its prime

factors: 5005

(v) Express each as a product of its prime

factors: 7429



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13. How many two digit numbers are divisible by 3?



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14. Let $\Delta ABC \sim \Delta DEF$ and their areas be , respectively , 64cm^2 and 121cm^2 . If $EF = 15.4$ cm, find BC



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15. Solve for x and y $2x + y = 6$ and $2x - y = 2$



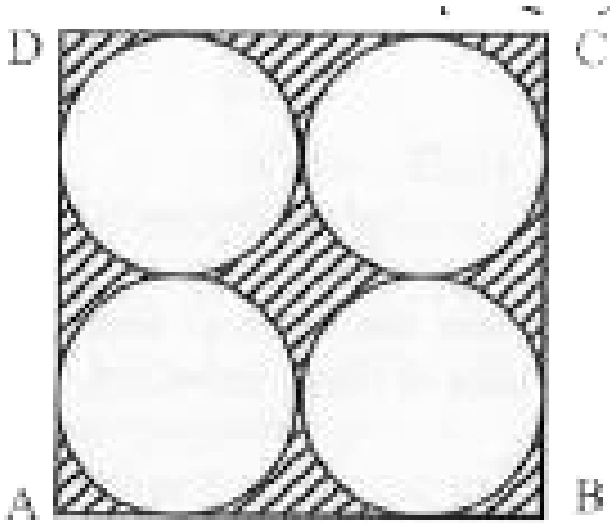
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16. Five years ago, Gouri was thrice as old as Ganesh . Ten Years later Gouri will be twice as old as Ganesh. How old are Gouri and Ganesh ?



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17. Find the area of the shaded region in the figure, where ABCD is a square of side 14 cm .



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18. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 60° .



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19. Find the value of K if the points A(2, 3) B(4, k) and C(6, -3) are collinear.

OR

Find the area of a triangle whose vertices are (1, -1) (-4, 6) and (-3, -5)





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20. Prove $3 + \sqrt{5}$ is irrational.



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21. Find the zeroes of polynomial

$$p(x) = 6x^2 - 3 - 7x$$



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22. Find a quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively.

$$\frac{1}{4}, -1$$



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23. Solve the equation $3x^2 - 5x + 2 = 0$ by using the formula



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$$24. 2 \tan^2 45^\circ + \cos^2 30^\circ - \sin^2 60^\circ = ?$$



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25. The angle of elevation of the top of a tower from a point on the ground, which is 30 m away from the foot of the tower is 30° . Find the height of the tower.



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26. As observed from the top of a 100 m high light house from the sea level the angle of depression of two ships are 30° and 45° . If one of the ship is exactly behind the other on the same side of the light house, find the distance between the two ships ($\sqrt{3} \approx 1.73$) .



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27. A die is thrown once. Find the probability of getting

a number lying between 2 and 6 .



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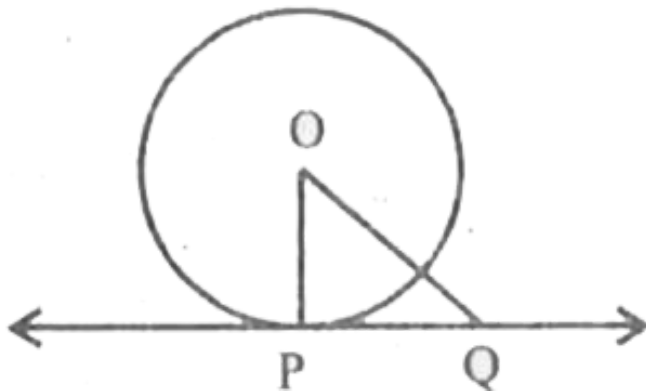
28. The volume of a cube is 64cm^3 . Find the total surface area of the cube.



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29. Prove that the tangent at any point of a circle is perpendicular to the radius through

the point of contact.



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30. Prove that "the lengths of tangents drawn from an external points to a circle are equal".

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31. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are $\frac{2}{3}$ of the corresponding sides of the first triangle.



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32. A two digit number is four times the sum of the digits. It is also equal to 3 times the product digits . Find the number.



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33. The numerator of a fraction is 3 less than its denominator. If 2 is added to both the numerator and the denominator, then the sum of the new fraction of original fraction is $\frac{29}{30}$. Find the original fraction.



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34. If $4 \tan \theta = 3$, Evaluate

$$\left[\frac{4 \sin \theta - \cos \theta + 1}{4 \sin \theta + \cos \theta - 1} \right]$$



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35. If $\tan 2A = \cot(A - 18^\circ)$ where $2A$ is an acute angle, find the value of A .



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36. Calculate the median for the following data

:

Class interval	Frequency (F)
0 – 20	6
20 – 40	8
40 – 60	10
60 – 80	12
80 – 100	6
100 – 120	5
120 – 140	3

$n = 50$



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37. Calculate the mode for the following frequency distribution table :

Class interval Frequency (F)

5 – 15 6

15 – 25 11

25 – 35 21

35 – 45 23

45 – 55 14

55 – 65 5

$$n = 80$$



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38. Construct 'ogive' for the following distribution :

C.I.	0 – 3	3 – 6	6 – 9	9 – 12	12 – 15
<i>F</i>	9	3	5	3	1



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39. The sum of four consecutive terms which are in an arithmetic progression is 32 and the ratio of the product of the first and the last term to the product of two middle terms is 7:15 . Find the number.



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40. In an arithmetic progression of 50 terms, the sum of first ten terms is 210 and the sum

of last fifteen terms is 2565. Find the arithmetic progression.



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41. Prove that "In a right angled triangle the square of hypotenuse is equal to the sum of the square of the other two sides".



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42. Solve the equations graphically:

$$2x - y = 2$$

$$4x - y = 4$$



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