

Question Paper - MATHS

1 Mark Questions

- (1)
Write the sequence of multiples of 3
- (2)
Write the sequence starting from 1 and $\frac{1}{2}$ is added subsequently
- (3)
The sides of a triangle are in the ratio of 1: $\sqrt{3}$:2. What are the angles ?
- (4)
How many odd numbers are there below 25

(5)

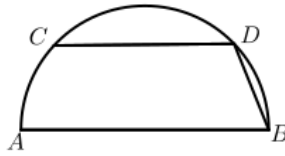
2 Mark Questions

- (6)
Look at the sequence $1 + (1 + 5), 2 + (2 + 5), 3 + (3 + 5) \dots$
a) Write next two terms
b) Write its algebra
- (7)
The difference between 12th and 8th term of an arithmetic sequence is 20. Find the common difference . ³
- (8)
If $A(4, 5), B(7, 6), C(4, 3)$ are the three vertices of a parallelogram $ABCD$ write the coordinates of the fourth vertex
- (9)
one end of the diameter of a circle is $(1, 4)$. The center of the circle is $(3, -4)$. Find the coordinates of other end
- (10)
Find a second degree polynomial $p(x)$ such that $p(-2) = 0$ and $p(5) = 0$

3 Mark Questions

- (11)
The algebra of an arithmetic sequence is $3n - 2$. Write the sequence. Is 99 a term of this sequence
- (12)
Write algebra of the sum of the sequence $6n + 5$. Can the sum 2000? Why?
- (13)

In the figure AB is the diameter and CD is parallel to the diameter. $AB = 8\text{cm}$, $BD = 2\text{cm}$, find CD



(14)

One angle of a triangle is 30° , prove that radius of the circumcircle is equal to the side opposite to 30°

(15)

A sector is folded in such a way as to get a cone. Radius of the sector is 12cm , central angle 120° . Calculate radius and slant height

(16)

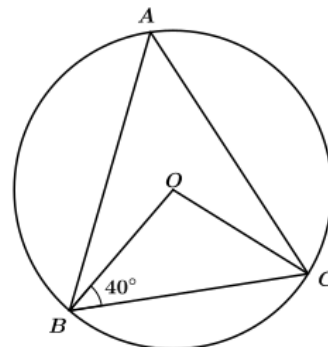
Radius of a cone is 4cm , slant height is $\frac{5}{2}$ times radius. Calculate the radius and central angle of the sector

(17)

When the square of a number is added to one more than ten times that number we get 300. Calculate the number ³

(18)

In the figure, O is the centre. If $\angle OBC = 40^\circ$
 find $\angle BOC$ and $\angle A$
 If $\angle OBC = 35^\circ$ find $\angle A$
 If $\angle OBC = x^\circ$ find $\angle A$



(19)

The base radius of a cone is 5 cm and its slant height is 13 cm . What is its height? Calculate its volume.

(20)

Find out the cyclic quadrilaterals among the following classes of quadrilaterals.

* Rectangles

* Squares

* Parallelograms

* Rhombuses

* Trapeziums

* Isosceles trapeziums

4 Mark Questions

(21)

Find the sum of n terms of the sequence $6, 10, 14 \dots$? How many terms of this sequence from the beginning in an order makes the sum 240. Can the sum of first few terms in an order makes the sum 250? Why?

(22)

In triangle ABC $AB = 8\text{cm}$, $BC = 6\text{cm}$, $AC = 10\text{cm}$.

★What kind of triangle is this?

★ What is the position of B based on the circle with AC as the diameter? Why?

★ What is the position of A based on the circle with BC as the diameter? Why?

★ What is the position of the point C based on the circle with diameter AB ?

(23)

A child observed an airplane flying horizontally at the height 1km at an angle of elevation 60° at an instant. After ten seconds he saw the plane at the angle 30° . Calculate the speed of the plane

(24)

The radius of a cone is 5cm, slant height 13cm . Calculate its height

(25)

The product of Ramu's age before 5 years and his age after 9 years is 15. Find his present age

(26)

The tenth term of an arithmetic sequence is 40. Eighteenth term is 88. Calculate common difference. Is 168 a term of this sequence. Why? Write the algebraic form of the sequence

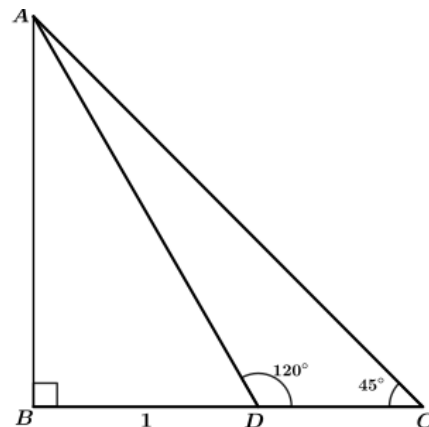
(27)

Draw a rectangle of sides 6 centimetres and 4 centimetres and draw a square of the same area.

(28)

In the figure, how much is $\angle BAD$? Calculate the lengths AD , DC and AC .

What is the ratio of the sides of a triangle with angle measures 15° , 45° , 120° ?



(29)

A circular metal sheet of radius 12 centimetres is cut into 4 equal sectors and bent into cones.

- How many such cones can be made? What is the slant height of one such cone?
- Calculate the base radius of one such cone.
- Find curved surface area of one such cone.

(30)

The score of a batsman in 6 matches are given.

10, 15, 20, 22, 18, 5

- Find the mean of these scores.
- Suppose he scored 130 runs in the 7th match. Now what is the mean score ?
- Is this mean score gives a clear indication of his performance?
- Find the median of these scores.

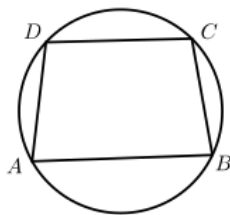
5 Mark Questions

(31)

Find the sum of first 20 natural numbers. How much more the sum of first 40 natural numbers that this ?

(32)

in the figure $ABCD$ is a trapezium. If the vertices are on a circle, prove that it is an isosceles trapezium



★ Draw figure

★ What is $\angle A + \angle C$?

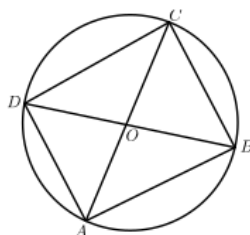
★ What is $\angle B + \angle D$?

★ Write the relation between $\angle A, \angle B$

★ Write the conclusion

(33)

in the figure O is the center of the circle, $OC = 5$, $\angle BOC = 60^\circ$. Calculate the area of triangle BOC . Also find the area of triangle OCD ? Calculate the area of $ABCD$?



(34)

Draw x, y axis and mark the points $A(0, 5), B(0, -2), C(4, 0), D(-3, 0), E(4, 5)$

What are the points on x axis, on y axis?

Write dinates of two more points on AE

Write the coordinates of two more points on CE

(35)

Serena and Johan had 45 diamond stones. They sold 5 stones. The product of the remaining stones is 124. Find the number of stones each had

(36)

Given $x - 1$ is a factor of $x^2 + ax + b$. Prove that $(a + b = -1)$

(37)

Draw a circle and mark a point A on the circle. Draw the tangent to A and mark the point P such that $PA = 6$. Draw a square with side PA . Construct a rectangle with one side 8 and area equal to area of the square.

(38)

Can $(3, 4), (5, 16), (7, 24)$ be the vertices of a triangle? Why?

If (x, y) is a point on the line joining first two points then prove that $(x + 1, y + 1)$ is a point on the same line⁴

(39)

Draw a circle of radius 4 centimetres and draw a square with all sides touching the circle.

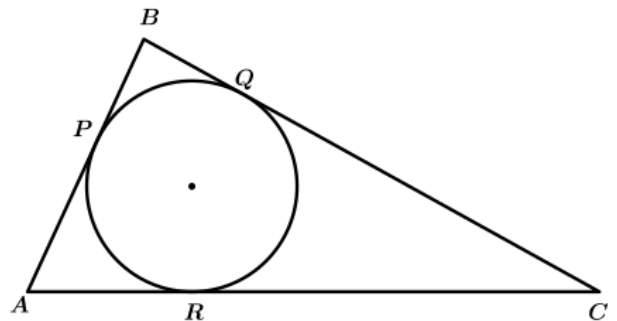
(40)

Draw a quadrilateral with any sides. Draw a circle touching any three sides.

In the figure, the incircle of $\triangle ABC$, touches the sides at P, Q and R . If $AB = 10\text{cm}, BC = 12\text{cm}, AC = 16\text{cm}$, find half the perimeter of the triangle.

What is the relation between half the perimeter and the lengths BC and AP ?

Find AP, BQ and CR



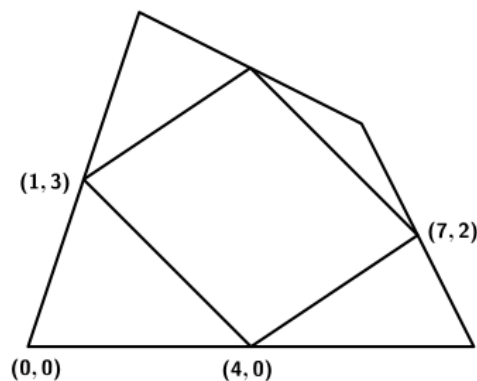
(41)

In this picture, the mid points of the sides of the larger quadrilateral are joined to make the smaller quadrilateral.

Calculate the coordinates of other vertices of the quadrilaterals.

Calculate the lengths of the sides of the smaller quadrilateral.

What is the speciality of this quadrilateral?



(42)

A box contains 5 black beads and 7 white beads. If one bead is taken,

- What is the probability of getting a black bead? What is the probability of drawing a white bead?
- In another box there are 4 black beads and 6 white beads. If one bead is taken,
- What is the probability of getting a black bead? What is the probability of getting a white bead?
- From which box is it more probable to draw a black bead?
- From which box is it more probable to draw a white bead?

(43)

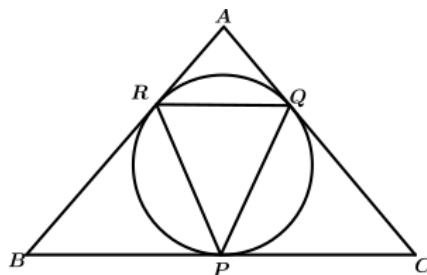
There are 12 beads in a box, some white and some black. The probability of drawing a white bead from it is $\frac{1}{3}$

- How many white beads are there in the box? How many black?
- If we take away 2 black beads from the box, what is the probability of drawing a white bead?
- Is the the probability of drawing a black bead increases?

(44)

In the figure, ABC is a triangle with $AB = AC$, $\angle A = 100^\circ$. Its incircle touches the sides at P, Q, R . How much are $\angle B$ and $\angle C$?

Calculate the angles of $\triangle PQR$



(45)

Daily wages and number of workers working in a company are listed.

Calculate the median daily wage.

Daily wages(Rs)	Number of workers
250	2
300	3
350	6
400	9
450	8
500	7
550	5