Question Paper - MATHS

1 Mark Questions

(1)

Write the sequence of prime numbers

(2)

Two angles of a triangle are 45^o,90^o. What is the ratio of the sides ?

(3)

Form the equation

The sum of a number and its square is ten times that number .

(4)

How many odd numbers are there below 25

(5)

2 Mark Questions

(6)

Write the sequence of the perimeters of the equilateral triangles having sides 1cm , 2cm, 3cm$\cdots$.

Write the sequence of area

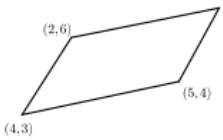
Write the sequence of angle sums

(7)

In triangle ABC, $AB = AC$.angle $BAC = 30°, BC = 5$cm Find the radius of ABC

(8)

The verticesof a triangle are given.



Find 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)

Write the following as the product of first degree polynomials

$\star\ x^2 + 7x + 12$

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)

Draw a circle and mark a point on it. Construct tangent to the circle at this point without using center.

(14)

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

(15)

Slant height of a cone is 20cm , radius 10cm .What should be the radius and central angle of the sector

(16)

Numbers from 1 to 10 are written in small papers and placed in a box .One number is taken from the box at random. What is the probabilty of getting a prime number.

(17)

What is the 5^{th} term of the sequence $23, 18, 13, ...$?What is the 6^{th} term ?

(18)

Find the length of the tangent to a circle with radius 7 centimetres, from a point 25 centimetres away from the centre?

(19)

In quadrilateral $ABCD$, $\angle A = x\,°, \angle B = 2x\,°, \angle C = 4x\,°, \angle D = 3x\,°$.

- Find the value of x
- Prove that quadrilateral $ABCD$ is cyclic.

(20)

In the quadrilateral $ABCD$, $\angle A = 75\,°, \angle B = 110\,°, \angle C = 85\,°$.

- Where would be the vertex D with respect to the circle through the vertices A, B and C? Justify
- Where would be the vertex C with respect to the circle through the vertices A, B and D? Justify
- Where would be the vertex B with respect to the circle through the vertices A, C and D? Justify

4 Mark Questions

(21)

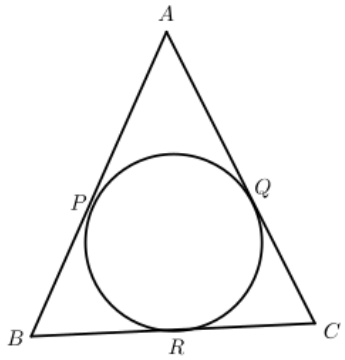
In an arithmetic sequence having terms natural numbers , prove that if one of the terms is a perfect square , it will have more that this as the perfect square term

(22)

Draw a rectangle of length 6cm and width 4cm. Draw another rectangle whose area equal to area of the first rectangle and one of the sides 8cm.

(23)

In the figure a circle touches the sides of $\triangle ABC$at P, Q, R. If $AB = AC$ then prove that $BR = CR$



(24)

The sides of $ABCD$are parallel to the coordinate axes and $A(3, 7), C(7, 9)$ are the opposite vertices . Write the coordinates of B and$D$

Find the lengths of AB and BC

Calculate the area of the rectangle $ABCD$

(25)

The length of a rectangle is 2 more than its width. Area of the rectangle is 80. Find length and breadth

(26)

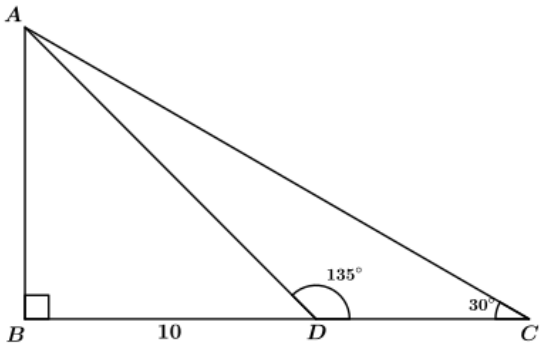
Two boxes contains tokens on which numbers $1, 2, 3, 4$ are written One token is taken from each box. What is the probabilty of getting sum of the face numbers a prime number

(27)

A man standing on the top of a tower observes the top of a building of height 10meter at an angle of depression $30°$. He saw the bottom of the tower at the angle of depression $60°$. Calculate the height of the tower

(28)

In the figure, $BD = 10cm$. Calculate $\angle BAD$ and $\angle BAC$
Calculate the sides of $\triangle ADC$.
Find the area of $\triangle ADC$.
What is the ratio of the sides of a triangle with angle measures $15°$, $30°$, $135°$?

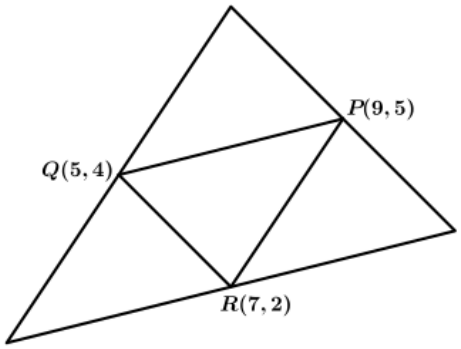


(29)

$(5, 3)$ is point on a line parallel to x-axis. What are the coordinates of the points at which it cuts the $y - axis$? What is the distance between these two points? What is the distance between this line and the $x - axis$?

(30)

In this picture, the mid points of the sides of the larger triangle are joined to make the smaller triangle PQR. Calculate the coordinates of the vertices of the larger triangle.



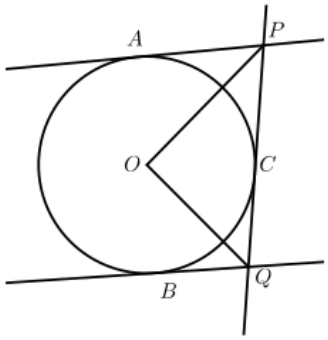
5 Mark Questions

(31)

The fisrt term of an arithmetic sequencs is 10 ,twenteth term 60. Calculate the sum of first 20 terms

(32)

In the figure $AP, BQ, PQ$are tangents to the circle. The line $AP$is parallel to BQ.Find $\angle POQ$



(33)

Draw a line of length $\sqrt{12}$. Construct a square with this line as a side. Can you construct a line of length $\sqrt{48}$in the same figure

(34)

A cone of largest size is carved from a wooden cylinder . If the volume of the cylinder is 1500π ,calculate the volume of the cone . If the height of the cylinder is 1cm, what is the height and radius of the cone

(35)

Prove that the points $(1, 3), (2, 5), (3, 7)$ are on a line

(36)

The marks obtained by the students of XA are given below. Calculate median

മാർക്ക്	എണ്ണം
10--20	6
20--30	7
30--40	8
40--50	10
50--60	7
60--70	4
70--80	3

(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.

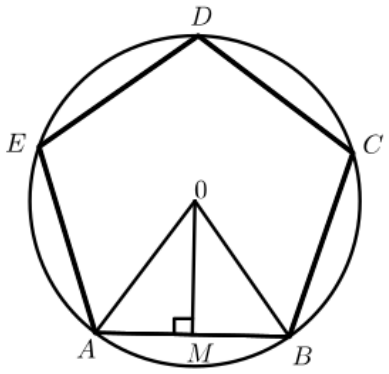
(38)

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?

(39)

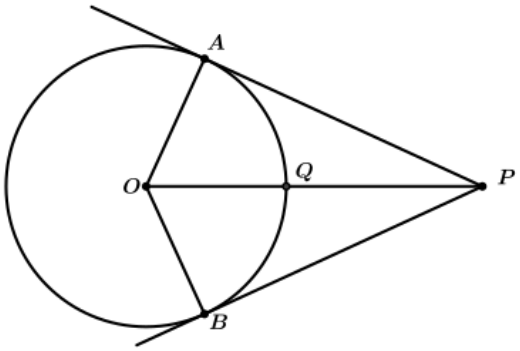
. In the figure O is the centre of the cicumcircle of the regular pentagon. Find $\angle AOB$ and $\angle AOM$. If the length of one side of the pentagon is 6 centimetres, how much is OM ? Calculate the area of $\triangle AOB$ and pentagon.



(40)

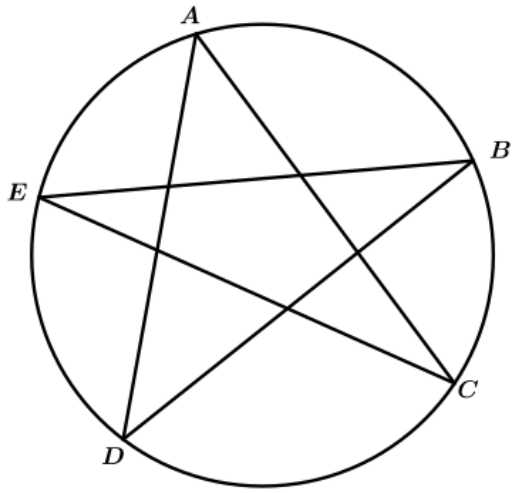
In the figure P is 37 centimetres away from the centre of the circle. If $PQ = 25cm$, then

- What is the radius of the circle?
- What are the lengths of the tangents PA andPB?
- What is the length of the tangent from a point 20 cm away from the centre of the circle?



(41)

In the figure, what is the relation between the central angle of small arc CD and $\angle A$.
Calculate $\angle A + \angle B + \angle C + \angle D + \angle E$



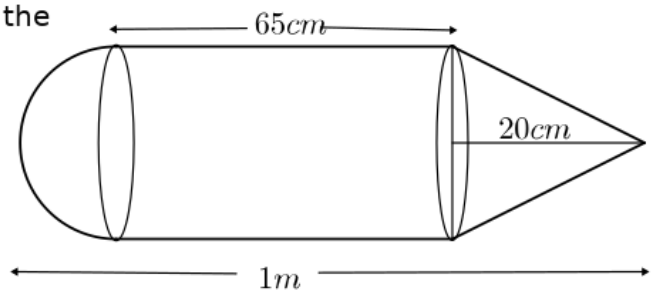
(42)
In a box there are 6 blue balls and 4 yellow balls and in another box, there are 2 blue balls and 8 yellow balls. If one ball is taken from each box,

- In how many different ways can we take two balls, one from each box ?
- How many pairs are possible with both blue ?
- what is the probability of both being blue ?
- How many pairs are possible with both yellow ?
- what is the probability of both being yellow ?

(43)
There are 12 beads in a box, some white and some black. The probability of drawing a white bead from it is $\frac{1}{3}$

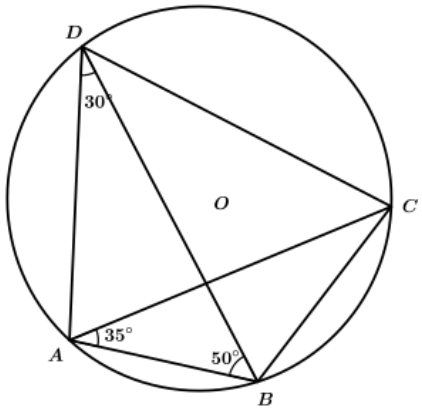
- How many white beads are there in the box? How many black?
- If we take away 2 black beads from the box, what is the probability of drawing a white bead?
- Is the the probability of drawing a black bead increases?

(44)
Find the total surface are of the given object



(45)

19. Find the measurements of given angles in each figures.



∠ACB =
∠ACD =
∠BDC =
∠ADC =
∠ABC =