# Question Paper - MATHS

## 1 Mark Questions

(1)

Write the sequence of prime numbers

(2)

The angles of a triangle are $30^o$,$60^o$,$90^o$. What is the ratio of the sides ?

(3)

The sides of a triangle are in the ratio of $1:\sqrt{3}:2$. What are the angles ?

(4)

How many two digits perfect squares are there

(5)

## 2 Mark Questions

(6)

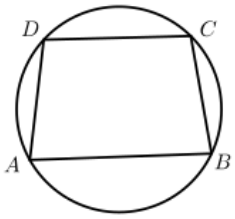
Write the sequence of the perimeters of the equilateral triangles having sides 1cm , 2cm, 3cm$\cdots$.

Write the sequence of area

Write the sequence of angle sums

(7)

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




(8)

If$A(2,-1), B(3,4), C(-2,3)$are the vertices of a triangle find 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)

The solutions of the equation $x^2-2x-24=0$are6and $-4$. If $P(x)=x^2-2x-24$ then find $P(-4)$ . Write the factors of $P(x)$

## 3 Mark Questions

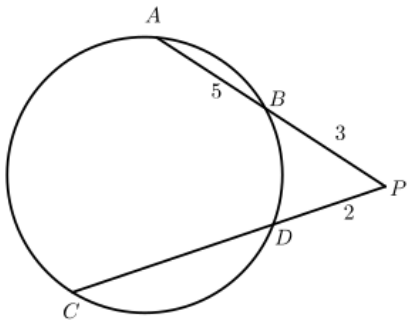
(11)

Write the algebra of the following sequences and its sum of $n$ terms

$5, 10, 15, 20\cdots$

(12)

in the figure $AB, CD$are extented and intersect at $P$. If $AB = 5, BP = 3, PD = 2$ then find $CD$ ?




(13)

Calculate the radius of the circle in which a tangent of length 12 cm is drawn from a point at the distance 13cm from the center

(14)

Draw a circle of radius 3cm. Construct two tangents from a point at a distance 7cm from the center of this circle.

(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)

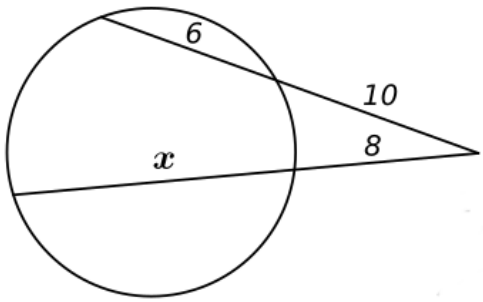
Find the length of the tangent to a circle with radius 7 centimetres, from a point 25 centimetres away from the centre?

(19)

A sector of central angle $216\,^\circ$ is cut out from a circle of radius $25cm$ and it is rolled up into a cone. What is its volume?

(20)

Find the value of $x$




## 4 Mark Questions

(21)

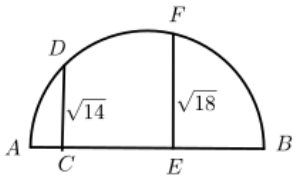
In an arithmetic sequence having terms natural numbers , prove that if one of the terms is a perfect square , it will have more that this as the perfect square term

(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 given below $AB$ is the diameter ,$CD, EF$are perpendicular to the diameter. Find the length of $AB$ as an integer




(24)

Radius of a cone is 10cm, volume 3140cubic centimeter. Calculate total surface area

(25)

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

(26)

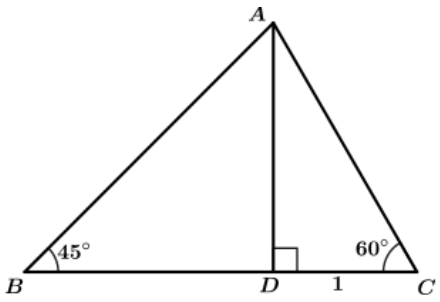
The sum of the first 30 terms of an arithmetic sequence is 90 more than the sum of the first 29 terms. Its 20 th term is 60. Calculate 30th term. Can the difference between any two terms 2017.

(27)

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

(28)

In the figure, $DC = 1cm$ How much is $BD$?
What is the ratio of the sides of a triangle with angle measures $45\,^\circ$, $60\,^\circ$, $75\,^\circ$?




(29)
A circle is drawn with centre at $(3, 0)$ and radius 5 units in a coordinate system. What are the coordinates of the points at which it cuts the $X$-axis? And the points where it cuts the $Y$-axis?

(30)
The score of a batsman in 6 matches are given.

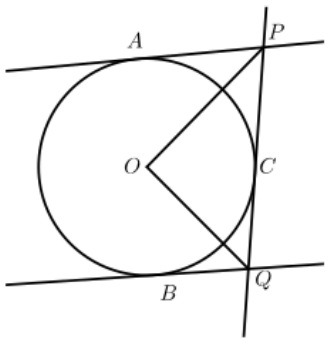
$$10, \quad 15, \quad 20, \quad 22, \quad 18, \quad 5$$

- Find the mean of these scores.
- Suppose he scored 130 runs in the $7^{th}$ 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

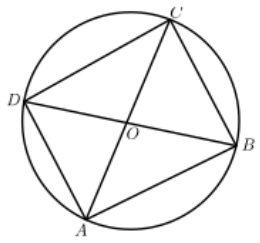
(31)
Find the sum of first 20 natural numbers. How much more the sum of first 40 natural numbers that this ?

(32)
In the figure $AP, BQ, PQ$are tangents to the circle. The line $AP$is parallel to $BQ$.Find $\angle POQ$




(33)

in the figure $O$ is the center of the circle , $OC = 5, \angle BOC = 60°$. 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)

A two digit number is four times sum of its digits. The number is three times product of the digits. Find the number

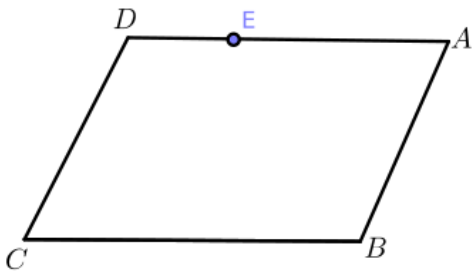
(36)

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)

In the parallelogram $ABCD$, $A(6, 4), B(15, 4)$. $E(9, 10)$ is a point on $CD$. Find the length of $AB$. Calculate the area of the parallelogram



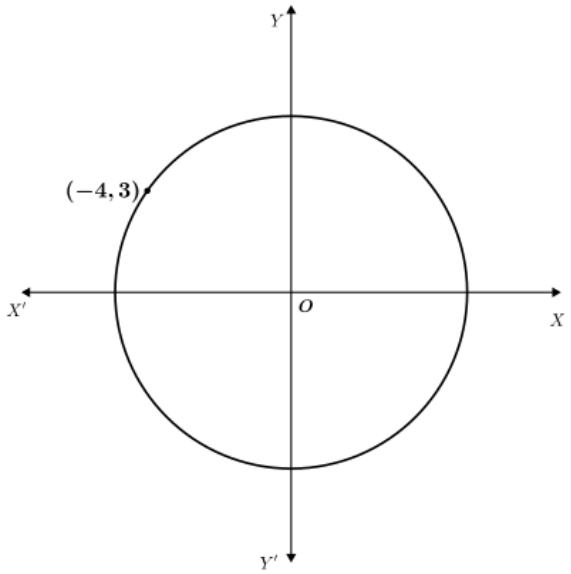

(38)

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)

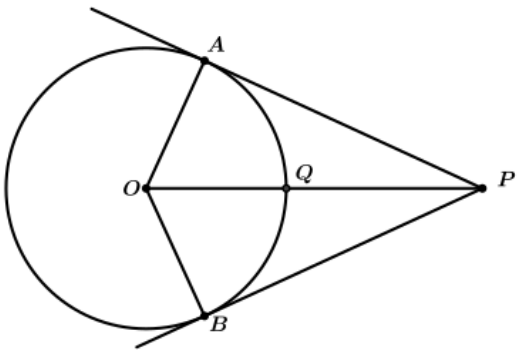
In the figure the centre of the circle is origin. Find its radius. What are the coordinates of the points at which it cuts the *axes*? Also find the coordinates of another two points on the circle.




(40)

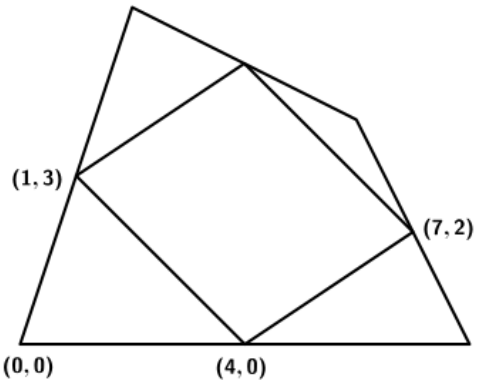
In the figure $P$ is 37 centimetres away from the centre of the circle. If $PQ = 25cm$, then

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




(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?



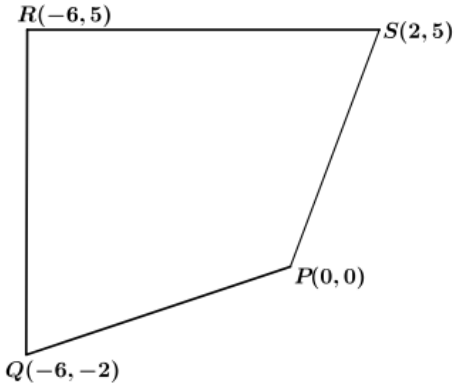

(42)

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 ?

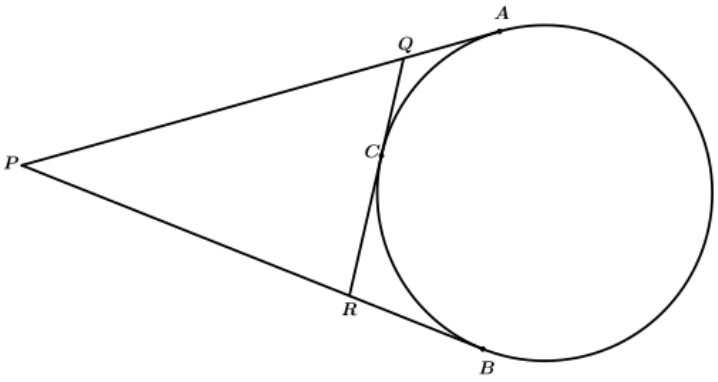
(43)

Find the perimeter of the given quadrilateral




(44)

In the figure, $PA, PB$ and $QR$ are tangents.
If $PA = 15$ , then prove that the perimeter of $\triangle PQR = 30cms.$




(45)

In the picture, the circle touches the axes at $A$ and $B$.
Find the coordinates of $B$.
Find the radius of the circle.
Find the coordinates of the centre of the circle.
Write the equation of the circle.