

Question Paper - MATHS

1 Mark Questions

(1)

Write the sequence of prime numbers

(2)

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

(3)

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

(4)

How many prime numbers are there below 30

(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)

In triangle ABC , $AB = AC$, angle $BAC = 30^\circ$, $BC = 5\text{cm}$ Find the radius of ABC

(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)

Write the product $(x - 1) \times (x + 1)$

(10)

Find a second degree polynomial $p(x)$ such that $p(1) = 0$ and $p(3) = 0$

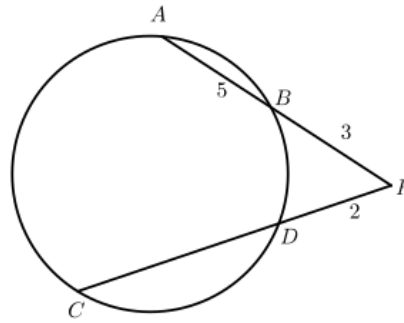
3 Mark Questions

(11)

Write the sequence of the squares of all odd numbers. What is its algebra?

(12)

in the figure AB, CD are extended 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)

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)

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 probability of getting a prime number.

(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)

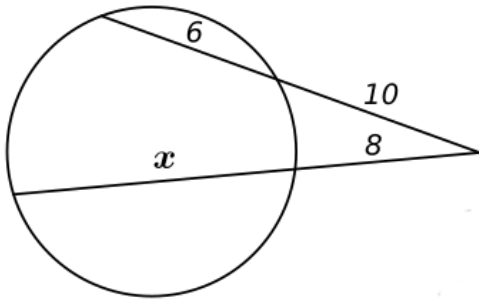
Find the length of the tangent to a circle with radius 7 centimetres, from a point 25 centimetres away from the centre?

(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 the value of x



4 Mark Questions

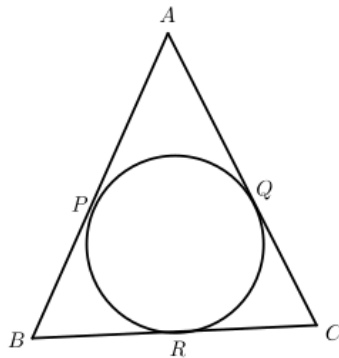
(21)

Prove that sum of some terms from the beginning of the sequence in the order $56, 88, 120 \dots$ can never be a perfect square. What should be added to the sum makes it a perfect square

(22)

(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)

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 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

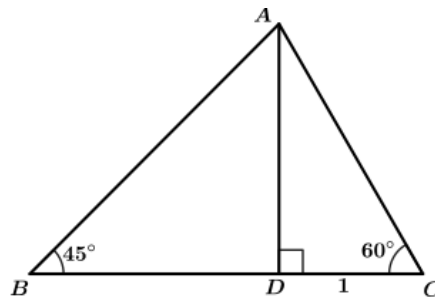
(27)

Find the mean and median
10,14,9,8,12,16,15

(28)

In the figure, $DC = 1\text{cm}$ How much is BD ?

What is the ratio of the sides of a triangle with angle measures 45° , 60° , 75° ?



(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 height of some children are given in centimetres. Find the mean and median height.

110, 117, 100, 120, 105, 128, 125

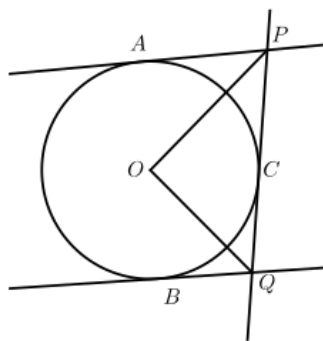
5 Mark Questions

(31)

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

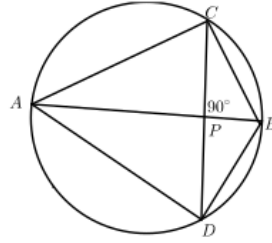
(32)

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



(33)

AB is the diameter of a circle, $PA = 9$, $\angle PAC = 30^\circ$ find the radius of the circle, Find the sides of $ABCD$



(34)

The radius of a cone and a sphere are equal. If the height of the cone is four times radius, what is the ratio of their volumes.

(35)

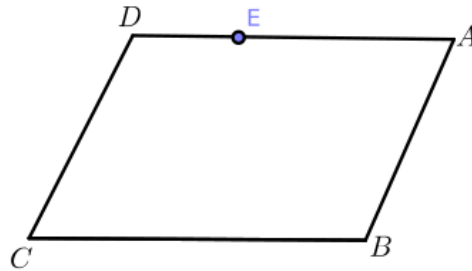
The sum of a number and its reciprocal is $\frac{5}{2}$. Find the number

(36)

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

(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)

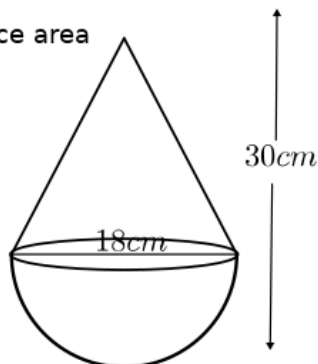
Draw an equilateral triangle with side $\sqrt{10}$ centimetres.

(39)

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

(40)

Find the total surface area



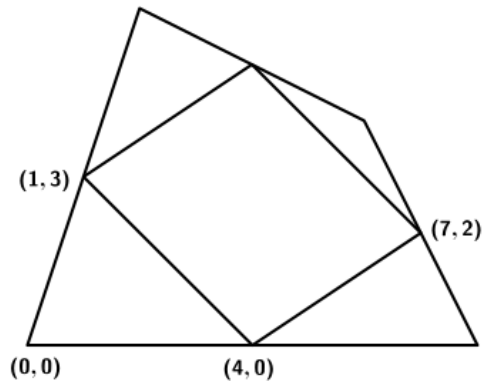
(41)

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?



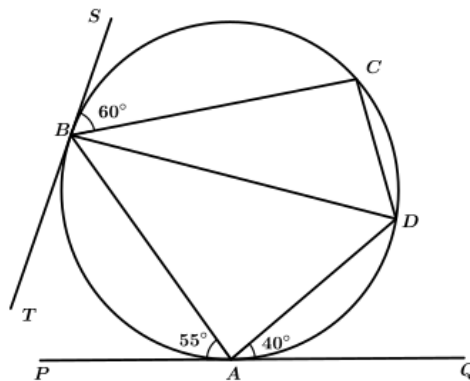
(42)

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)

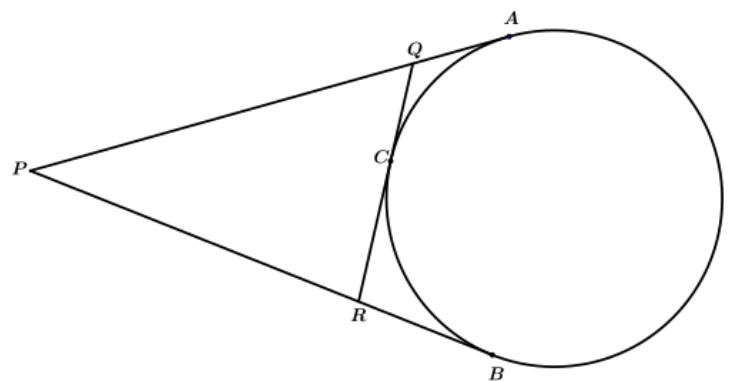
In the figure, PQ, ST are tangents. Find the angles of quadrilateral.



(44)

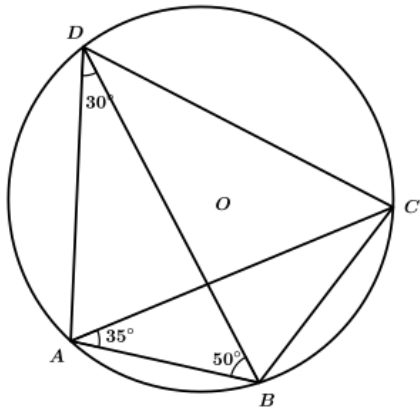
In the figure, PA, PB and QR are tangents.

If $PA = 15$, then prove that the perimeter of $\triangle PQR = 30\text{cms}$.



(45)

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



- $\angle ACB =$
- $\angle ACD =$
- $\angle BDC =$
- $\angle ADC =$
- $\angle ABC =$

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