

# Question Paper - MATHS

## 1 Mark Questions

(1)

Write the sequence of natural numbers

(2)

Write the sequence starting from 1 and  $\frac{1}{2}$  is added subsequently

(3)

How many odd numbers are there below 25

(4)

How many odd numbers are there below 25

(5)

## 2 Mark Questions

(6)

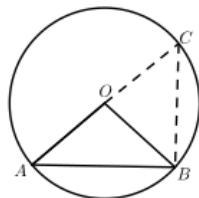
Look at the sequence  $1 + (1 + 5), 2 + (2 + 5), 3 + (3 + 5) \dots$

a) Write next two terms

b) Write its algebra

(7)

Using the figure find  $AB$



(8)

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

(9)

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

(10)

The first term of an arithmetic sequence is 17 and its common difference 8. Is 2017 a term of this sequence?

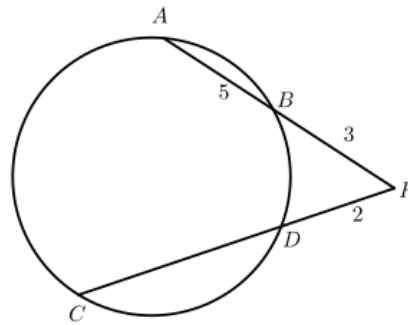
## 3 Mark Questions

(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)

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

(14)

In triangle  $ABC$ ,  $AC = BC, OA = 5, \angle AOB = 160^\circ$  then find  $AB, AC, BC$

(15)

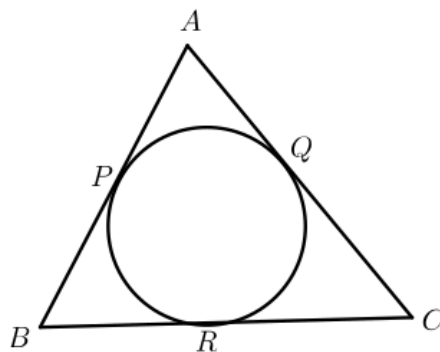
The central angle of a sector is  $90^\circ$ , radius 16cm, calculate slant height and radius

(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)

$O$  is the incenter of triangle  $ABC$ . The incircle touches the sides at  $P, Q, R$ .  $\angle POQ = 110^\circ, \angle C = 60^\circ$ . Find  $\angle B, \angle POR$ .



(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  $ABCD$ ,  $\angle A = x^\circ, \angle B = 2x^\circ, \angle C = 4x^\circ, \angle D = 3x^\circ$ .

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

(20)

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

- 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

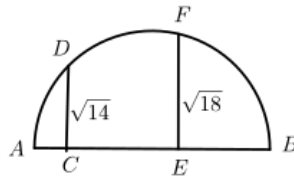
(21)

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

(22)

(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 3140 cubic centimeter. Calculate total surface area

(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 contain tokens on which numbers 1, 2, 3, 4 are written. One token is taken from each box. What is the probability of getting sum of the face numbers a prime number

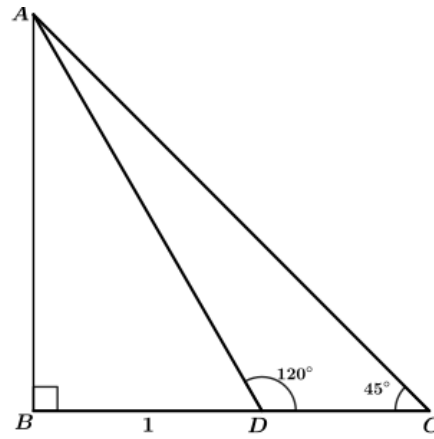
(27)

Find the mean and median

10, 14, 9, 8, 12, 16, 15

(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  $15^\circ$ ,  $45^\circ$ ,  $120^\circ$ ?



(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)

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

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

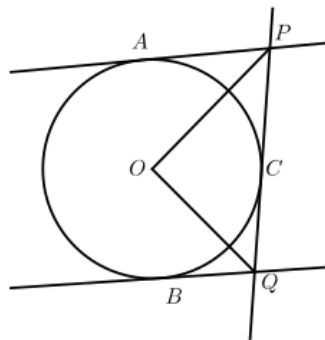
## 5 Mark Questions

(31)

The common difference of an arithmetic sequence is a prime above 2. The difference between two terms is 224. Can 2017 be the difference between any two terms of this sequence

(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)

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)

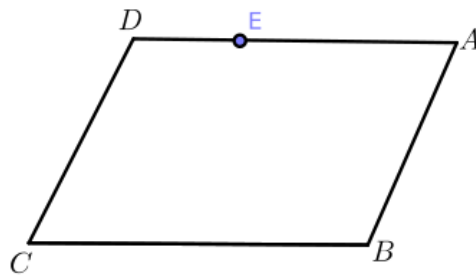
Prove that the points  $(1, 3), (2, 5), (3, 7)$  are on a line

(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



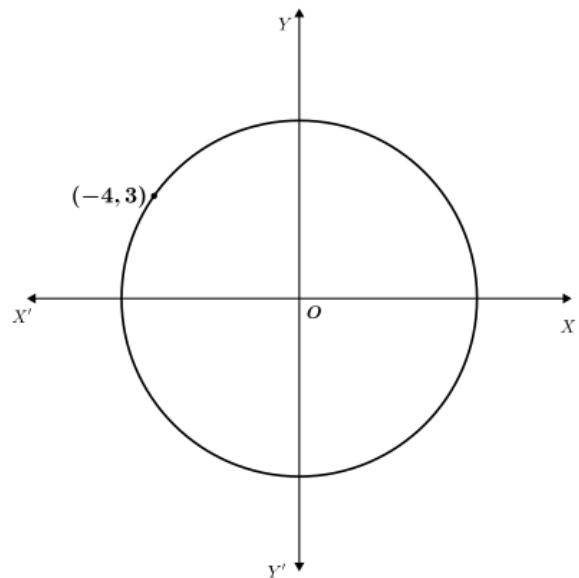
(38)

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 line<sup>4</sup>

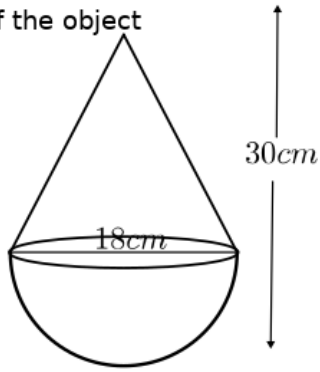
(39)

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.



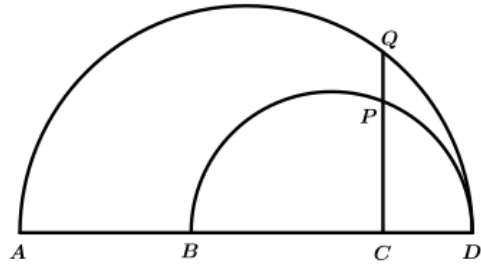
(40)

Find the volume of the object



(41)

In the figure,  $AD = 10\text{cm}$ ,  $BD = 6\text{cm}$ ,  $CD = 2\text{cm}$ .  
Find  $CP$ ,  $CQ$ ,  $PQ$ .



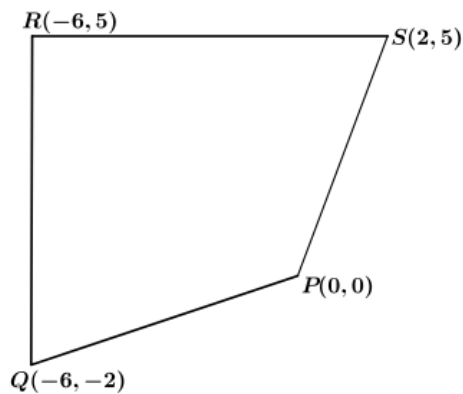
(42)

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)

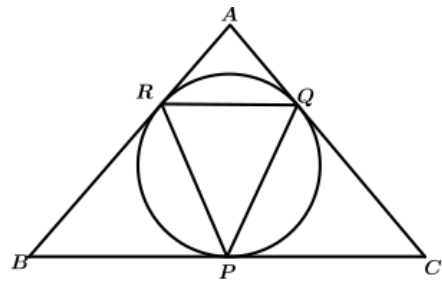
Find the perimeter of the given quadrilateral



(44)

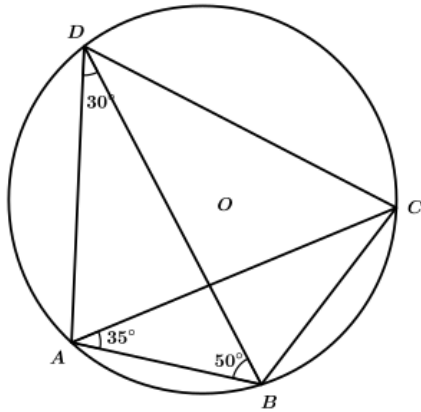
In the figure,  $ABC$  is a triangle with  $AB = AC$ ,  $\angle A = 100^\circ$ . Its incircle touches the sides at  $P, Q, R$ . How much are  $\angle B$  and  $\angle C$ ?

Calculate the angles of  $\triangle PQR$



(45)

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



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

