# MATHS

# BOOKS - MAXIMUM PUBLICATION

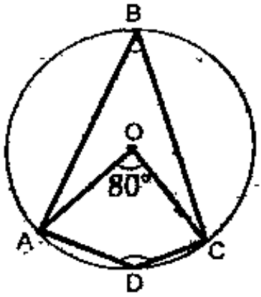
# QUESTION PAPER MARCH 2019

**Example**

**1.** In the figure O is the centre of circle.

$\square AOC = 80^o$

What is the measure of $\square ABC$?

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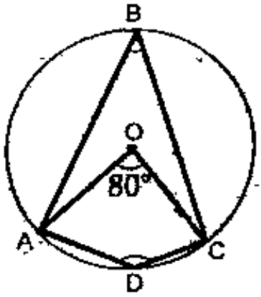
**2.** In the figure O is the centre of circle.

$\square AOC = 80^o$

What is the measure of $\square ADC$?

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**3.** Write the first integer term of the arithmetic sequence $\frac{1}{7}, \frac{2}{7}, \frac{3}{7} \ldots$

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**4.** Arithmetic sequence is $\frac{1}{7}, \frac{2}{7}, \frac{3}{7} \ldots$ What is the sum of the first 7 terms of this sequence?

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**5.** If $C(-1, k)$ is a point on the line passing through the points $A(2, 4)$ and $B(4, 8)$. Which numbers is k?

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**6.** If $C(-1, k)$ is a point on the line passing through the points $A(2, 4)$ and $B(4, 8)$.What is the relation between the x coordinate and the y coordinate of any point on this line?

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**7.** Find $P(1)$ if $P(x) = x^2 + 2x + 5$

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**8.** If $(x-1)$ is a factor of $x^2+2x+k$, What number is k?

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**9.** What is the remainder on dividing the terms of the arithmetic sequence 100,107,114.... by 7?

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**10.** Write the sequence of all three digit numbers. Which leaves remainder 3 on division by 7? Which is the last term of this sequence?

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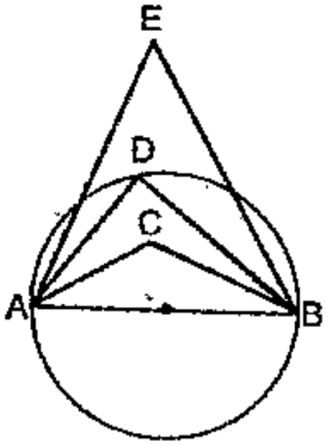
**11.** AB is the diameter of the circle. D is a point on the circle

$\square ACB + \square ADB + \square AEB = 270^o$

.Measure of one among

$\square ACB$, $\square ADB$, $\square AEB$ is $110^o$. Write the measures of $\square ADB$, $\square ACB$ and $\square AEB$.

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**12.** If x is a natural number What number is to be added to $x^2 + 6x$ to get a perfect square?

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**13.** If x is a natural number.if $x^2 + ax + 16$ is a perfect square which number is 'a'?

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**14.** If x is a natural number.If $x^2 + ax + b$ is a perfect square prove that $a^2 = 4b$.

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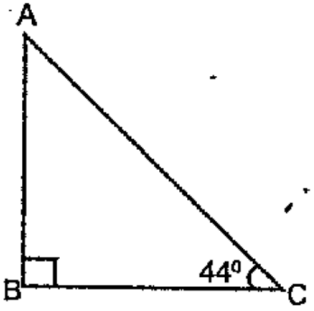
**15.** In the figure $\angle B = 90^o, \angle C = 44^o$ What is the measure of $\angle A$?

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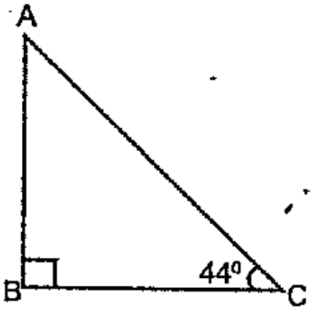
**16.** In the figure $\angle B = 90^o, \angle C = 44^o$ Which among the following is $\tan 44^o$?

$\left(\frac{AB}{BC}, \frac{AB}{AC}, \frac{BC}{AB}, \frac{BC}{AC}\right)$,

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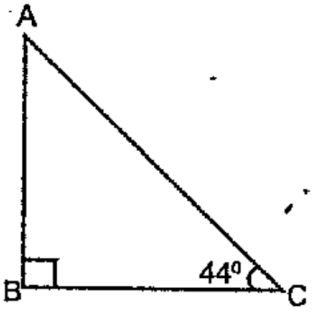
**17.** In the figure $\angle B = 90^o, \angle C = 44^o$ Prove that $\tan 44^o \times \tan 46^o = 1$



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**18.** Draw a circle of radius 3 centimetres. Mark a point P at a distance 6 centimetres from the centre of the circle. Draw tangents from P to the circle.

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**19.** Find the coordinates of the point on $x$ axis at a distance 4 units from (3,4).

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**20.** Find the coordinates of the points on $x$ axis at a distance 5 units from (3,4).

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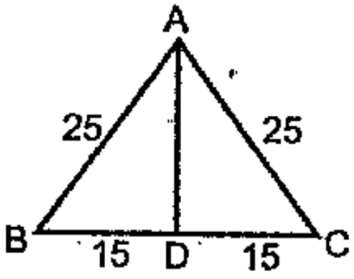
**21.** The given figure is the lateral face of a square pyramid. $AB = AC = 25$ centimetres and $BD = DC = 15$ centimetres. What is the

length of its base edge?

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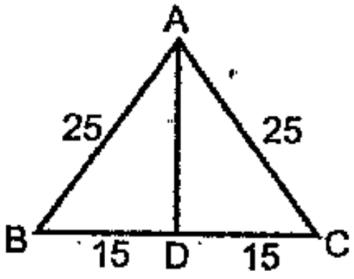
**22.** The given figure is the lateral face of a square pyramid. $AB = AC = 25$ centimetres and $BD = DC = 15$ centimetres. Find the

lateral surface area of the pyramid.

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**23.** In triangle $ABC$, $\square A = 30^o$, $\square B = 80^o$, circumradius of the triangle is 4 centimeters. draw the triangle. Measure and write the length of its smallest side.

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**24.** Find the following sum:

$1 + 2 + 3 + \ldots\ldots . \ + 100$

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**25.** Find the following sum:

$1 + 3 + 5 + \ldots\ldots \ + 99$

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**26.** Find the following sum:

$2 + 4 + 6 + \ldots\ldots + 100$

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**27.** Find the following sum:

$3 + 7 + 11 + \ldots\ldots . + 199$

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**28.** A box contains some green and blue balls. 7 red balls are put into it. Now the probability of getting a red ball from the box is $\frac{7}{24}$ and that of a blue ball is $\frac{1}{6}$. How many balls are there in the box?

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**29.** A box contains some green and blue balls. 7 red balls are put into it. Now the probability of getting a red ball from the box is $\frac{7}{24}$ and

that of a blue ball is $\frac{1}{6}$. How many of them are blue?

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**30.** A box contains some green and blue balls. 7 red balls are put into it. Now the probability of getting a red ball from the box is $\frac{7}{24}$ and that of a blue ball is $\frac{1}{6}$.What is the probability of getting a green ball from the box?

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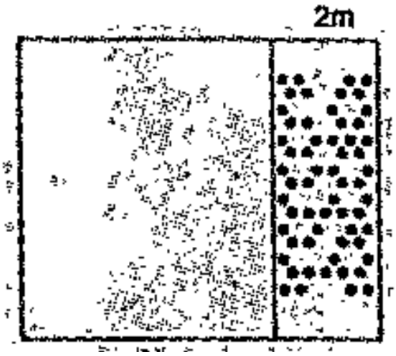
**31.** Land is acquired for road widening from a square ground, as shown in the figure. The width of the acquired land is 2 metres. Area of the remaining ground is 440 square metres.What is the shape of the remaining ground?

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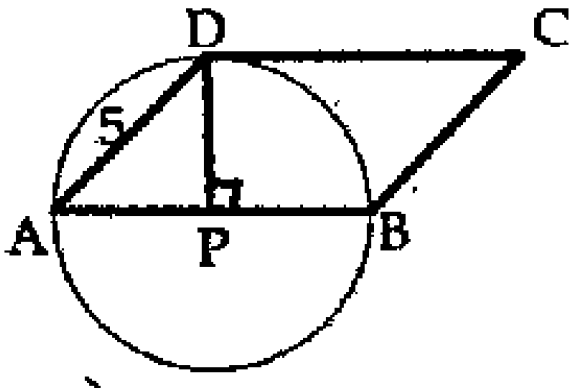
**32.** In the figure P is the centre of the circle A,B and D are points on the circle. $\angle P = 90^o$, $AD = 5$ centimetres What is the measure of




$\angle A$?

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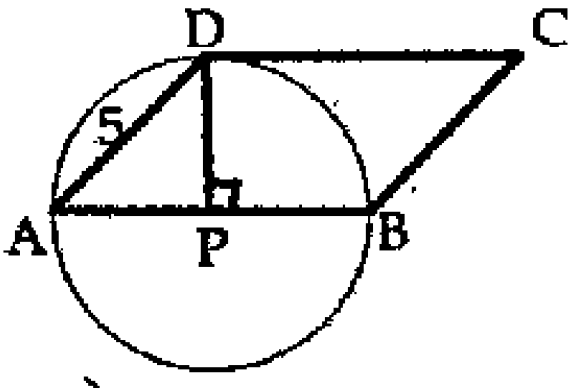
**33.** In the figure P is the centre of the circle A,B and D are points on the circle. $\angle P = 90^o$,

$AD = 5$ centimetres What is the area of triangle $APD$?

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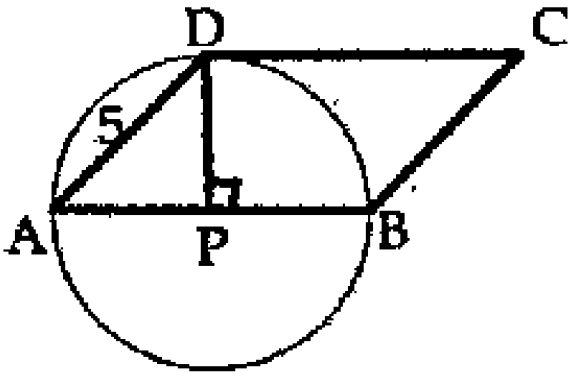
**34.** In the figure P is the centre of the circle A,B and D are points on the circle. $\angle P = 90^o$, $AD = 5$ centimetres Find the area of the

parallelogram $ABCD$.

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**35.** Draw the coordinate axes and mark the points $A(1, 1), B(7, 1)$.

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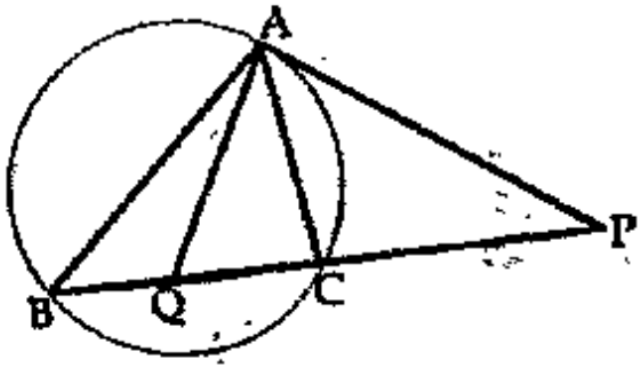
**36.** In the figure chord BC is extended to P. Tangent from P to the circle is PA. AQ is the bisector of $\angle BAC$

Write one pair of equal angles from that figure.

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**37.** If $x - 1$ is a factor of the second degree polynomial $P(x) = ax^2 + bx + c$ and $P(0) = -5$ What is the value of c?

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**38.** If $x - 1$ is a factor of the second degree polynomial $P(x) = ax^2 + bx + c$ and $P(0) = -5$ Prove that $a + b = 5$.

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**39.** If $x - 1$ is a factor of the second degree polynomial $P(x) = ax^2 + bx + c$ and $P(0) = -5$ Write a second degree polynomial whose one factor is $x = 1$.

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**40.** A circular sheet of paper is divided into two sectors. Central angle of one of them is $160^o$. What is the central angle of the remaining sector?

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**41.** A cicular sheet of paper is devided into two sectors. Central angle of one of them is $160^o$. These sectors are bent into cones of maximum volume. If the radius of the small cone is 8 centimetres, what is the radius of the other?

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**42.** A cicular sheet of paper is devided into two sectors. Central angle of one of them is $160^o$.If

the radius of the small cone is 8 centimetres

What is the slant height of the cones?

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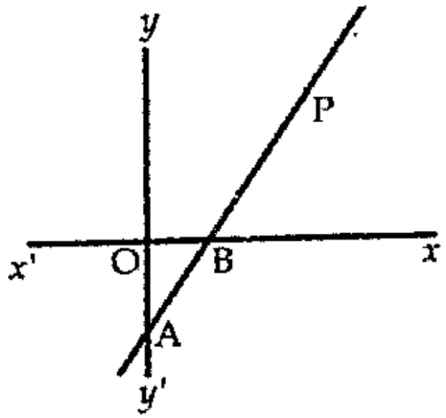
**43.** Equation of the line AB is $3x - 2y = 6$. P is a point on the line. The line intersects the y-axes at A and the x-axis at B.

What is the length of OA?

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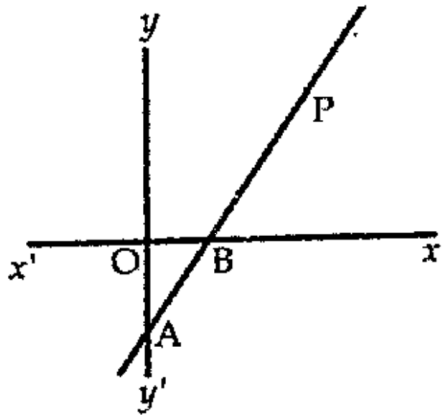
**44.** Equation of the line AB is $3x - 2y = 6$. P is a point on the line. The line intersects the y-axes at A and the x-axis at B.

What is the length of OB?

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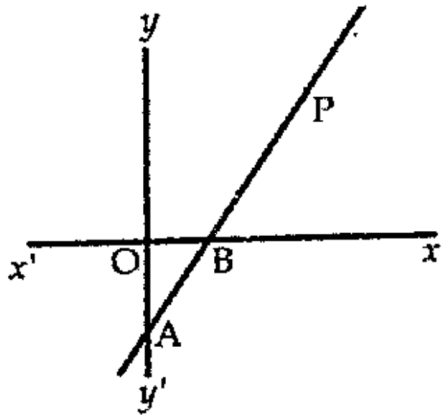
**45.** Equation of the line AB is $3x - 2y = 6$. P is a point on the line. The line intersects the y-axes at A and the x-axis at B.

The $x$ coordinate the $y$ corrdinate of $P$ are

same. Find the coordinates of $P$.

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**46.** If the terms of the arithmetic sequence $\frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}..$ are represented as $x_1, x_2, x_3..$ then $x_1 + x_2 + x_3 = .....$

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**47.** If the terms of the arithmetic sequence $\frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}..$ are represented as $x_1, x_2, x_3..$ then $x_4 + x_5 + x_6 = .....$

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**48.** If the terms of the arithmetic sequence $\frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}..$ are represented as $x_1, x_2, x_3..$ then .Find the sum of first 9 terms.

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**49.** If the terms of the arithmetic sequence $\frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}..$ are represented as $x_1, x_2, x_3..$ then What is the sum of first 200 terms?

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**50.** A boy standing at one bank of a river sees the top of a tree on the other bank directly opposite to the boy at an elevation of $60^o$.

Stepping 40 metres back, he sees the top at an elevation of $30^o$. Draw a rough figure and find the height of the tree.

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**51.** A boy standing at one bank of a river sees the top of a tree on the other bank directly opposite to the boy at an elevation of $60^o$. Stepping 40 meters back, he sees the top at an elevation of $30^o$. What is the width of the river?

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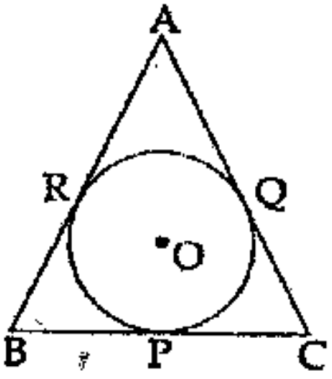
**52.** Circle with centre O touches the sides of the triangle at P, Q and R, $AB = AC, AQ = 4$ centimetres and $CQ = 6$ centimetres. What is the length of CP?

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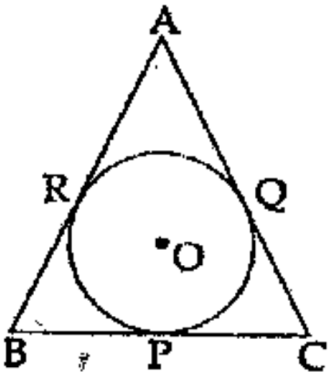
**53.** Circle with centre O touches the sides of the triangle at P, Q and R, $AB = AC, AQ = 4$ centimetres and $CQ = 6$ centimetres.Find the perimeter and the area of the triangle.

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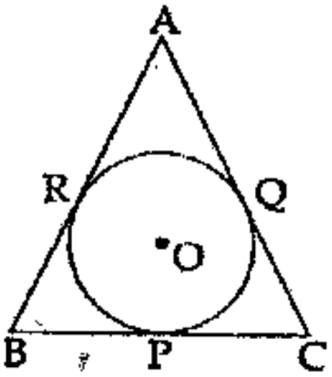
**54.** Circle with centre O touches the sides of the triangle at P, Q and R, $AB = AC, AQ = 4$ centimetres and $CQ = 6$ centimetres.What is the radius of the circle?

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**55.** Radius of a cylinder is equal to its height. If the radius is taken as r, volume of the cylinder is $\pi r^2 \times r = \pi r^3$. Like this find the volume of the solids, with the following measures.What is the ratio of the volume of cone, hemisphere, cylinder and the sphere?

| Solids | Measures | Volume |
|---|---|---|
| Cone | Radius = height = r | |
| Hemisphere | Radius = r | |
| Sphere | Radius = r | |

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**56.** A solid metal sphere of radius 6 centimetres is melted and recast into solid cones of radius 6 centimetres and height 6 centimetres. Find the number of cones.

| Solids | Measures | Volume |
|---|---|---|
| Cone | Radius = height = r | |
| Hemisphere | Radius = r | |
| Sphere | Radius = r | |

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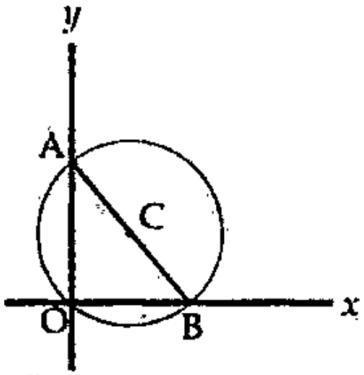
**57.** C is the centre of the circle passing through the origin. Circle cuts the y-axis at

$A(0, 4)$ and the x-axis at $B(4, 0)$.Write coordinates of C.

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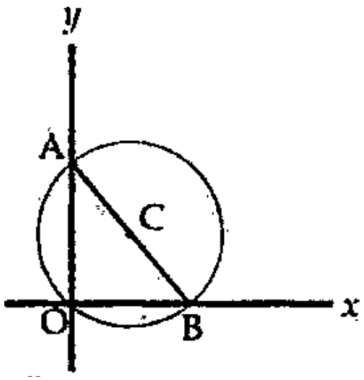
**58.** C is the centre of the circle passing through the origin. Circle cuts the y-axis at $A(0, 4)$ and the x-axis at $B(4, 0)$.Write the

equation of the circle.

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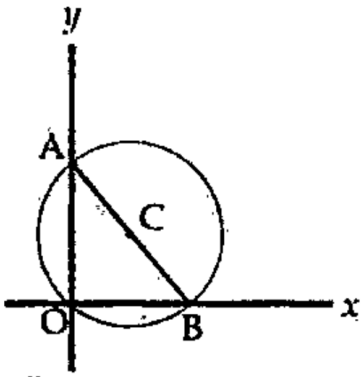
**59.** C is the centre of the circle passing through the origin. Circle cuts the y-axis at $A(0, 4)$ and the x-axis at $B(4, 0).(0, 0)$ is the point on the circle. There is one more point on the circle with $x$ and $y$ coordinates equal.

Which is that point?

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**60.** The table below shows the number of children is a class, sorted according to their heights.

If the students are directed to stand in a line according to the order of their heights

starting from the smallest, then

Find the median height.

| Height (Centimetres) | Number of Children |
|---|---|
| 130-140 | 7 |
| 140-150 | 9 |
| 150-160 | 10 |
| 160-170 | 10 |
| 170-180 | 9 |

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