



MATHS

BOOKS - MAXIMUM PUBLICATION

QUESTION PAPER MARCH 2020

Example

1. Write the 6th term of the arithmetic sequence 1,25,49,73,97,.....



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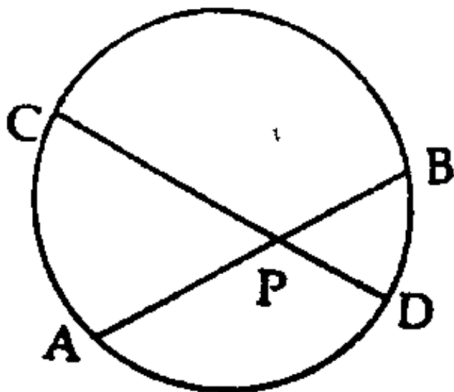
2. How many perfect square terms are there in the arithmetic sequence 97,73,49,.....?



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3. Chords AB and CD are intersecting at P . $AB = 10$ centimetres, $PB = 4$ centimetres and $PD = 3$ centimetres. What is

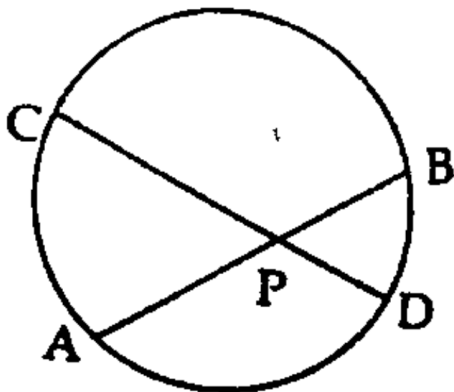
the length of PA?



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4. Chords AB and CD are intersecting at P. $AB = 10$ centimetres, $PB = 4$ centimetres and $PD = 3$ centimetres. Find the

length of PC.



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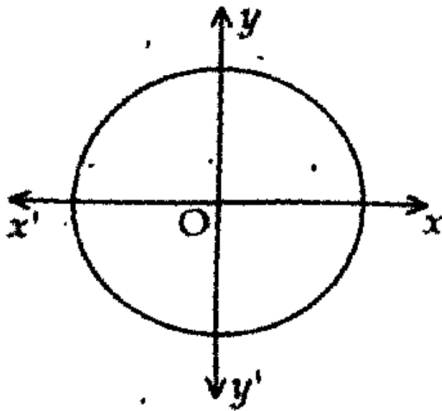
5. Write the polynomial $p(x) = x^2 - 4$ as the product of two first degree polynomials.



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6. In the figure, O is the centre of the circle and $x^2 + y^2 = 25$ is the equation of the circle.

What is the radius of the circle?



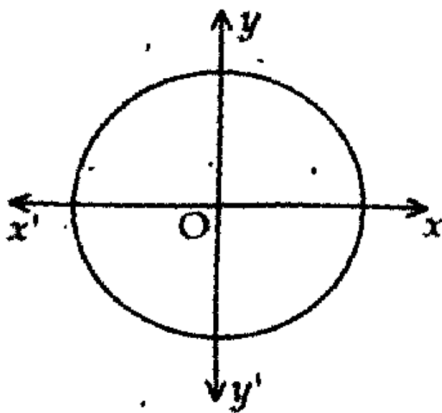
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7. In the figure, O is the centre of the circle and

$x^2 + y^2 = 25$ is the equation of the circle.

Write the equation of the circle whose centre

is at the origin and radius is 3.



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8. Write the first term and the common difference of the arithmetic sequence whose algebraic expression is $3n + 5$.



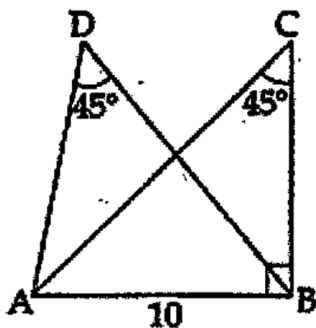
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9. First term of an arithmetic sequence is 8 and the common difference is 5. Write its algebraic form.



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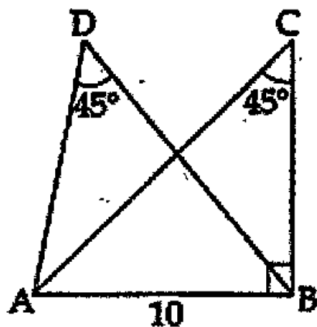
10. In the figure, $\angle ABC = 90^\circ$, $\angle C = \angle D = 45^\circ$, $AB = 10$ cm. What is the length of AC?



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11. In the figure, $\angle ABC = 90^\circ$, $\angle C = \angle D = 45^\circ$, $AB = 10$ cm. What is the

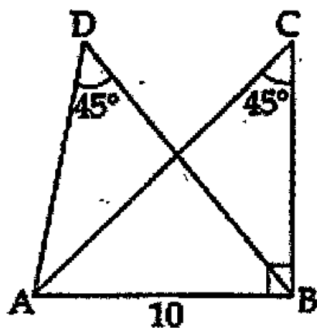
radius of the circumcircle of triangle ABC?



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12. In the figure, $\angle ABC = 90^\circ$,
 $\angle C = \angle D = 45^\circ$, $AB = 10$ cm What is the

radius of the circumcircle of triangle ABD?



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13. 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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14. What is the common difference of the arithmetic sequence $x - 1, x, x + 1, \dots$?



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15. If $x - 1$ is an even number, which is the next even number?



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16. Prove that the product of two consecutive even numbers added to 1 gives a perfect square.

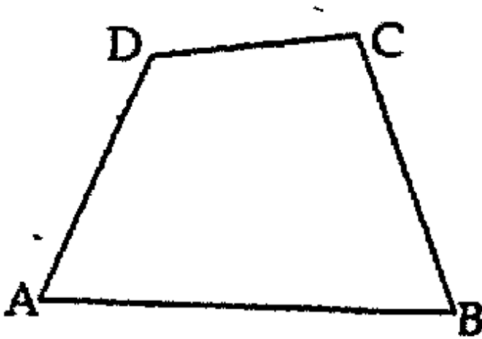


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17. In the figure, ABCD is a cyclic quadrilateral.

Also $\angle A + \angle D = 210^\circ, \angle D + \angle C = 250^\circ$

.What is $\angle A + \angle C$?

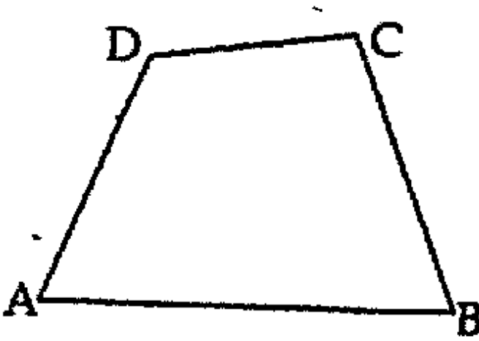


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18. In the figure, ABCD is a cyclic quadrilateral.

Also $\angle A + \angle D = 210^\circ, \angle D + \angle C = 250^\circ$

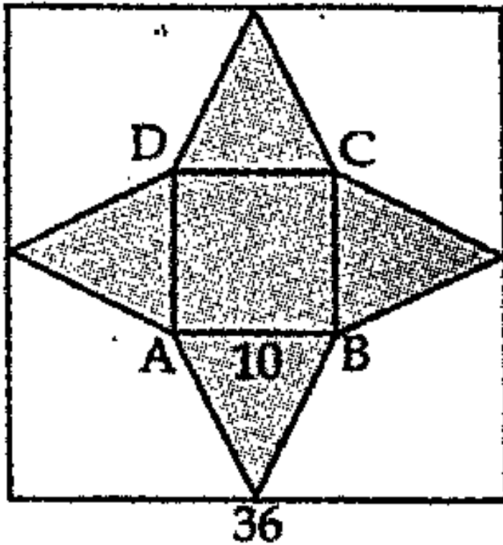
.Find the measures of $\angle A$ and $\angle C$.



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19. The figure of a square sheet of paper is shown below. Length of one side of the paper sheet is 36 centimetre and $AB = 10$ centimetres. The shaded portion is cut out and folded into a square pyramid.

What is the length of the base edge of the pyramid?



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20. What is the sum of the first 5 terms of the arithmetic sequence 1,3,5,7,.....?



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21. What is the sum of the first n term of the arithmetic sequence 1,3,5,7.....?



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22. Find the sum of the first n terms of the arithmetic sequence

$$\frac{1}{n}, \frac{3}{n}, \frac{5}{n}, \frac{7}{n}, \dots$$



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23. What is the sum of first 2020 terms of the arithmetic sequence $\frac{1}{2020}, \frac{3}{2020}, \frac{5}{2020}, \dots$?



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24. 'Draw a rectangle of length 4 centimetres and breadth 2 centimetres. Draw a square having, the same area of the rectangle.



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25. In a school, total number of students in 10 A division is equal to the total number of students in 10 B. One student is to be selected from each division. Number of boys in 10A is 20. The probability of selecting a boy from 10 A is $\frac{2}{5}$ and that of from 10 B is $\frac{3}{5}$. How many students are there in 10A?



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26. In a school, total number of students in 10 A division is equal to the total number of students in 10 B. One student is to be selected from each division. Number of boys in 10A is 20. The probability of selecting a boy from 10 A is $\frac{2}{5}$ and that of from 10 B is $\frac{3}{5}$. What is the probability of selecting a girl from 10A?



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27. In a school, total number of students in 10 A division is equal to the total number of students in 10 B. One student is to be selected from each division. Number of boys in 10A is 20. The probability of selecting a boy from 10 A is $\frac{2}{5}$ and that of from 10 B is $\frac{3}{5}$. How many boys are there in 10 B?



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28. In a school, total number of students in 10 A division is equal to the total number of students in 10 B. One student is to be selected from each division. Number of boys in 10A is 20. The probability of selecting a boy from 10 A is $\frac{2}{5}$ and that of from 10 B is $\frac{3}{5}$. What is the probability of both the selected students being boys?

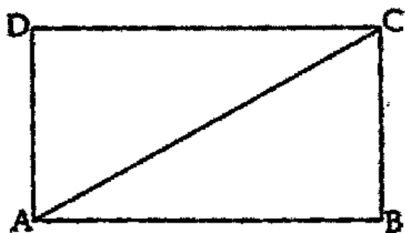


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29. Perimeter of the rectangle in the figure is

36 centimetres. $AC = \sqrt{164}$ centimetres.

What is $AB + BC$?

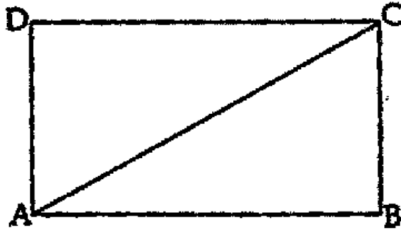


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30. Perimeter of the rectangle in the figure is

36 centimetres. $AC = \sqrt{164}$ centimetres. Find

the length of AB.



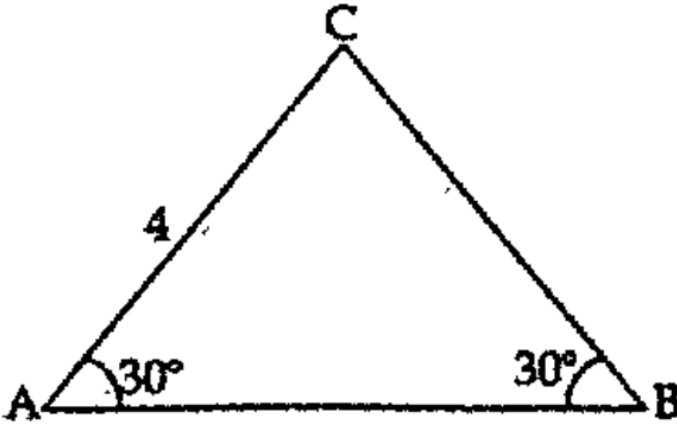
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31. In triangle ABC , $\angle A = \angle B = 30\text{degree}$,

$AC = 4\text{centimetres}$

In triangle PQR , $PQ = 4\sqrt{3}$ centimetres,

$\angle P = \angle Q = 30^\circ$. Draw the triangle.



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32. If $p(x) = x^2 - 7x + 13$, What is $p(3)$?



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33. If $p(x) = x^2 - 7x + 13$. Write polynomial $p(x) - p(3)$ as the product of two first degree polynomials.



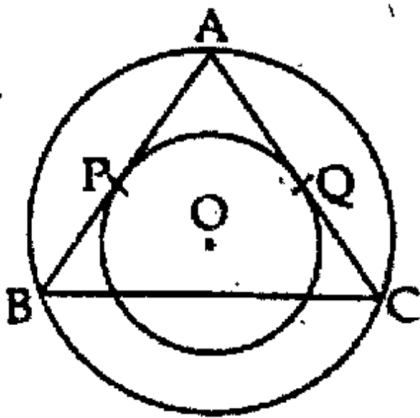
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34. If $p(x) = x^2 - 7x + 13$. Find the solutions of the equation $p(x) - p(3) = 0$.



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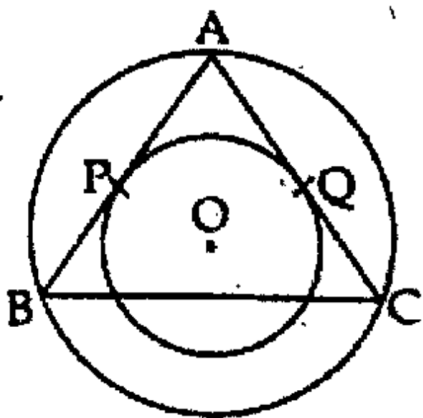
35. In the figure, O is the centre of both the circles. AB and AC touch the small circle at P and Q . A, B and C are points on the large circle. If $AP = 5$ centimetres, then what is the length of AQ ?



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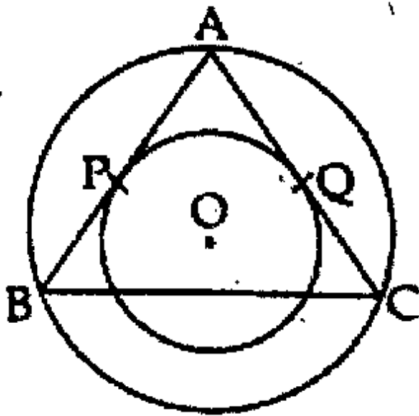
36. In the figure, O is the centre of both the circles. AB and AC touch the small circle at P and Q. A, B and C are points on the large circle.

Prove that $AB = AC$.



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37. In the figure, O is the centre of both the circles. AB and AC touch the small circle at P and Q. A, B and C are points on the large circle. If $AP = 5$ centimetres and $\angle A = 90^\circ$, then what is the radius of the small circle?



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38. Draw the coordinate axes and mark the points $A(-3, 0)$, $B(3, 0)$ and $C(0, 3\sqrt{3})$.



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39. A sector of radius 12 centimetres and central angle 120° is rolled up into a cone. What is the slant height of the cone?



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40. A sector of radius 12 centimetres and central angle 120° is rolled up into a cone. Find the radius and the height of the cone.



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41. What is the central angle of the sector to be used to make a cone of base radius $\sqrt{2}$ centimetres and height 4 centimetres?



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42. What is the slope of the line passing through the points $(5,0)$ and $(3,2)$? Write the equation of the line.



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43. The x coordinates of the point on the line $x - y = 5$ is 5. What is the y coordinate of that point?



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44. Write the coordinates of the point of intersection of the lines $x + y = 5$ and $x - y = 5$.



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45. Sum of the first 4 terms of an arithmetic sequence is 72. Sum of the first 9 terms is also 72. What is the 5th term of the sequence?



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46. Sum of the first 4 terms of an arithmetic sequence is 72. Sum of the first 9 terms is also 72. Find the sum of the first five terms.



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47. Sum of the first 4 terms of an arithmetic sequence is 72. Sum of the first 9 terms is also 72. Write the sequence.



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48. A boy standing at the edge of a canal sees the top of a tree on the other edge at an elevation of 60° . Stepping 12 metres back, he sees it at an elevation of 30° . Find the height of the tree.



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49. A circle is drawn with $(5,3)$ as centre. $(5,6)$ is a point on the circle. What is the radius of the circle?



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50. A circle is drawn with $(5,3)$ as centre. $(5,6)$ is a point on the circle. Write the equation of the circle.



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51. A circle is drawn with $(5,3)$ as centre. $(5,6)$ is a point on the circle. What is the distance from the centre of the circle to the x-axis?



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52. A circle is drawn with $(5,3)$ as centre. $(5,6)$ is a point on the circle. What is the length of the tangents from the origin to the circle?



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53. The radius of a solid sphere is 6 centimetres. Find its volume and surface area.



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54. The radius of a solid sphere is 6 centimetres. It is cut into two equal halves. What is the total surface area of each hemisphere? What is the volume of a hemisphere?



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55. The table below shows, children of a class sorted according to their marks in an examination.

Compute the median mark.

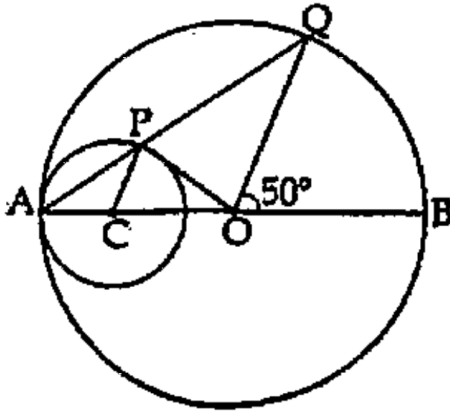
Marks	Number of Children
0 - 10	4
10 - 20	7
20 - 30	10
30 - 40	12
40 - 50	8
	41



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56. In the figure, O is the centre of the large circle. Centre of the small circle is C. OP is a tangent to the small circle. $\angle BOQ = 50^\circ$.

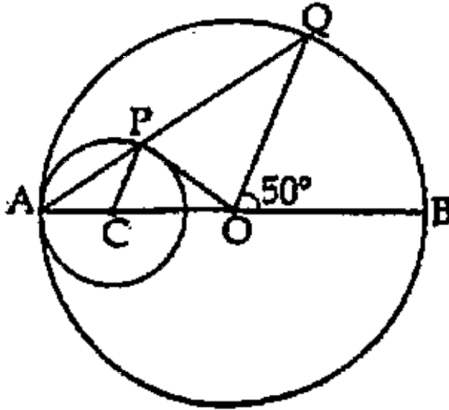
$$\angle OAQ = \dots\dots\dots$$



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57. In the figure, O is the centre of the large circle. Centre of the small circle is C. OP is a tangent to the small circle. $\angle BOQ = 50^\circ$.

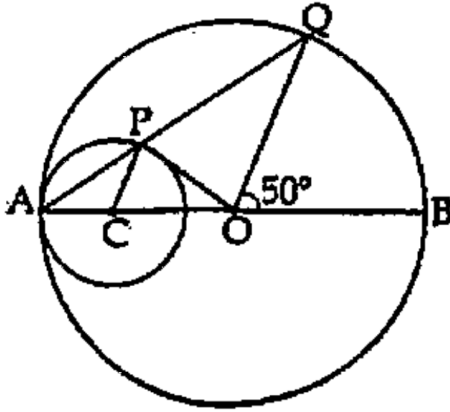
$$\angle OCP = \dots\dots\dots$$



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58. In the figure, O is the centre of the large circle. Centre of the small circle is C. OP is a tangent to the small circle. $\angle BOQ = 50^\circ$.

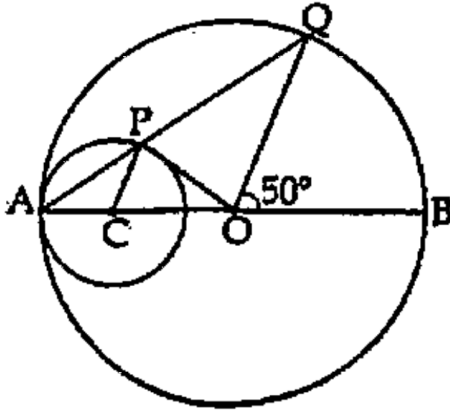
$$\angle APO = \dots\dots\dots$$



[!\[\]\(919a2cb85b99741a73c0c31a427236a8_img.jpg\) Watch Video Solution](#)

59. In the figure, O is the centre of the large circle. Centre of the small circle is C. OP is a tangent to the small circle. $\angle BOQ = 50^\circ$.

$$\angle POQ = \dots\dots\dots$$



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60. Read the following Passage. Understand the Mathematical concept in it and answer the questions that follow. Each question carries 1 score.

The common difference of the arithmetic sequence 15,14,13,12,..... is $14 - 15 = -1$. First terms of the sequence is 15 and the 15th term is $15 + 14x - 1 = 15 - 14 = 1$.

Similarly the 4th term is 12 and the 12th term is 4. Its 16th term is, $x_{16} = 15 + 15x - 1 = 15 - 15 = 0$. So the sum of the first 31 terms is also zero. that is if the n^{th} is m, then the mth term is n and the $(m + n)^{\text{th}}$ term is zero.

Seventh term of an arithmetic sequence is 10 and the 10th term is 7. What is the common difference?



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