

FIRST MID TERM EVALUATION JULY : 2016 -'17

Time : 1¼ hrs
Total Score : 40

Std. X

MATHEMATICS

Note : i) Answer all questions.

ii) Read the questions carefully and answer them with proper understanding.

iii) Logical explanations should be given wherever necessary.

4. Which among the following arithmetic sequences has its algebraic form $6n-3$? What is its common difference?

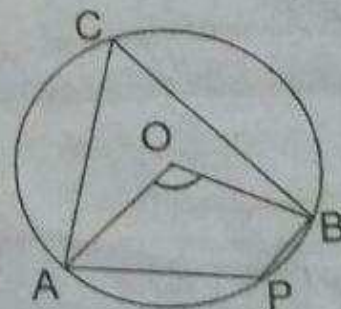
i) 6, 12, 18, ii) 3, 9, 15,

iii) 9, 15, 21, iv) 10, 16, 22,

2

5. In $\triangle ABC$, $\angle A = 60^\circ$ and $\angle B = 70^\circ$. Identify the position of point C with respect to the circle drawn with AB as diameter. 2

6. From the figure O is the centre and $\angle AOB = 100^\circ$. Find $\angle ACB$ and $\angle APB$. 2

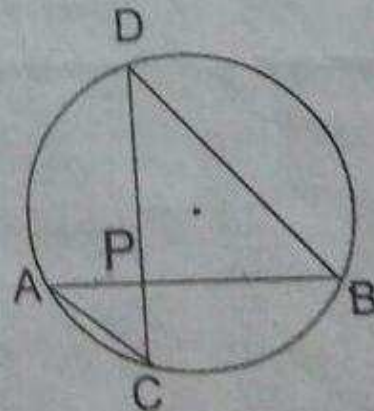


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7. The 5th term of an arithmetic sequence is 38 and the 9th term is 66. What is its 10th term? 2

8. Prove that exterior angle of a cyclic quadrilateral is equal to the interior angle at the opposite vertex. 3

9. In the figure, chords AB and CD are perpendicular to each other. The chords intersect at P. If $AB = 18\text{cm}$, $PB = 12\text{cm}$ and $AC = 10\text{cm}$, calculate the lengths of PD and BD.

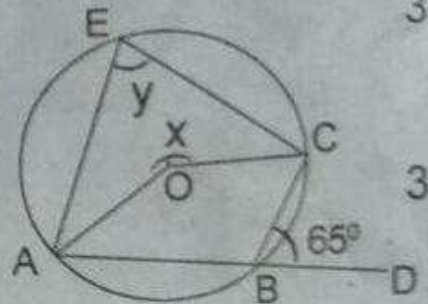


7 In a floral arrangement, there are 23 roses in the first row, 21 in the second, 19 in the third and so on. There are 5 roses in the last row. How many rows are there in the arrangement? 3

8 Find the sum of

- the first 1000 positive integers and
- the first n positive integers.

9 In the figure, O is the centre of the circle. $\angle CBD = 65^\circ$. Calculate x and y . 3



10 The algebraic expression of a sequence is $6n^2 - 13n + 7$.

Is this an arithmetic sequence? Give reasons. 3

11 Prove that for any four consecutive terms of an arithmetic sequence, the sum of the two terms on the two ends and the sum of the two terms in the middle are equal. 3

12 The 10th term of an arithmetic sequence is equal to the sum of 40 and 5th term. If the 15th term is 127, what is its common difference? What is its first term? What is the sum of the first 30 terms. 4

13 Consider the arithmetic sequence 3, 9, 15, 21,

i) Write the algebraic expression of this sequence.

ii) Find the 16th term of this sequence.

iii) Find the sum of the terms from 16th to 30th terms of the sequence.

iv) Can the sum of some of the first terms of this sequence be 300? 4

4 Draw a triangle of sides 4cm, 5cm, and 6cm and draw a square of equal area. 3