



DIET MALAPPURAM & VIJAYABHERI MALAPPRAM
SSLC MODEL EXAMINATION , MARCH 2022
SET-1
MATHEMATICS



Time: $2\frac{1}{2}$ hrs

Total score: 80

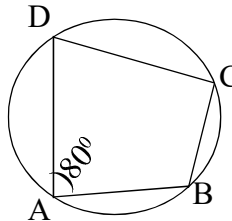
PART-1

Section: A

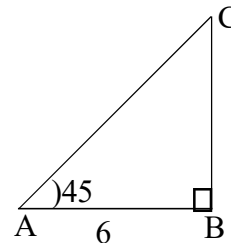
Answer any 4 of the questions from 1 to 6 [each carries 1 score (4x1=4)]

1. What is the common difference of the arithmetic sequence 10,14,18,...

2. In the figure, $\angle A=80^\circ$,
What is the measure of $\angle C$?



3. In the figure, $\angle A=45^\circ$, $\angle B=90^\circ$,
 $AB=6$ cm. What is the length of AC ?



4. Score awarded to 9 students are given below.

18, 19, 20, 21, 25, 28, 30, 38, 42

What is the median score?

5. Area of the flat surface of an hemisphere is 15 square centimetres. What is its curved surface area?

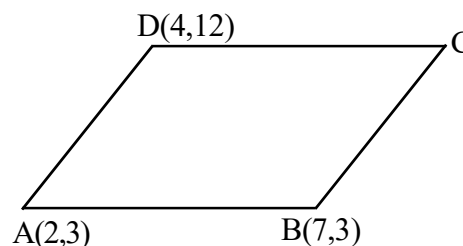
[15 square centimetre,10 square centimetre, 30 square centimetre, 45 square centimetre.]

6. In the figure, ABCD is a parallelogram.

$A(2,3)$, $B(7,3)$, $D(4,12)$.

Write the coordinates of C.

[(9, 12), (5,0), (9,0),(5,12)]



Section: B

Answer all questions from 7 to 10. [each carries 1 score (4x1=4)]

7. Sum of first n terms of an arithmetic sequence is $4n^2+6n$. What is the first term?

[4, 6, 10, 2]

8. What is the maximum value of k for which $P(x) = x^2-6x+k$ can be written as the product of two first degree polynomials.

[9, -9, 36, -36]

9. Perimeter of a triangle is 20 cm and its area is 30 square cm. What is the inradius of this triangle?

[1 cm , 2 cm , $2\frac{1}{2}$ cm , 3 cm]

10. A box contains 6 red balls. another box contains 4 blue balls. A ball is taken from each box and arranged as pairs. What is the possible number of pairs?

[10, 24, 6, 4]

PART-2

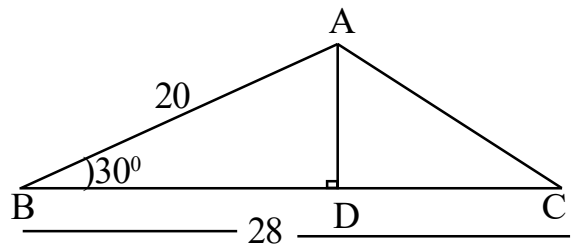
Section : A

Answer any three from questions from 11 to 15. [each carries 2 scores (3x2=6)]

11. Draw a circle of radius 2cm, mark a point P on it. Draw a tangent through this point.

12. In the figure, AB=20cm, BC=28cm, $\angle B=30^\circ$ and the line AD is perpendicular to BC.

- a) What is the length of AD?
- b) Find the area of triangle ABC.

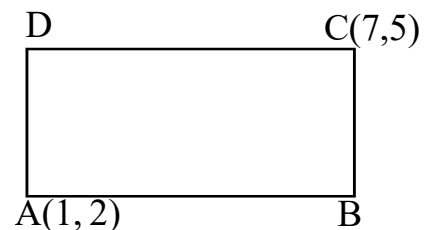


13. a) Write an arithmetic sequence with common difference 5.

b) What is the difference between its 10th and 20th terms?

14. Sides of the rectangle ABCD are parallel to the axes. If A(1, 2), C(7, 5), then

- a) Write the coordinates of B.
- b) Find the length of AB.



15. The table shows some children sorted according to their ages.

- a) What is the total number of students?
- b) Find the median age?

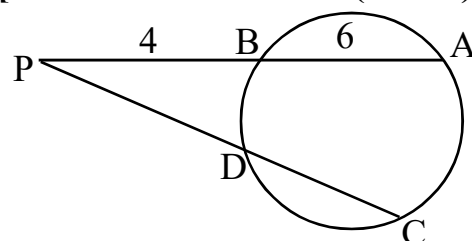
Age	Number of students
8	5
10	7
13	8
14	6
16	3

Section : B

Answer any two from questions 16 to 18. [each carries 2 score (2x2=4)]

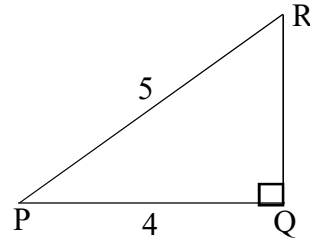
16. In the figure, AB=6cm, BP=4cm, CP=8cm.

- a) What is the length of PA?
- b) Find the length of PD.



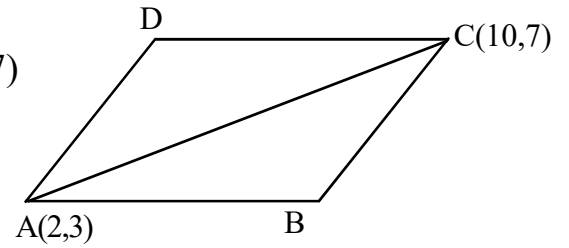
17. In the figure, $\angle Q=90^\circ$, $PR=5\text{cm}$, $PQ=4\text{cm}$

- Find the length of QR .
- Find the number $\tan P$



18. In the figure ABCD is a parallelogram. $A(2, 3)$, $C(10, 7)$

- Find the coordinates of midpoint of AC .
- Find the coordinates of midpoint of BD .



PART-3

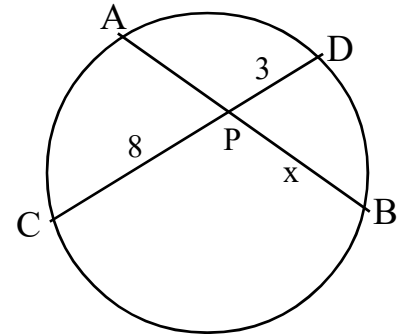
Section: A

Answer any three from questions 19 to 23.

[each carries 4 score (3x4=12)]

19 In the figure, $PC=8\text{cm}$, $PD=3\text{cm}$,
Length of PA is 2cm more than
the length of PB

- If the length of $PB=x$, write the length of PA using x .
- Form a second degree equation and find the length of PB .



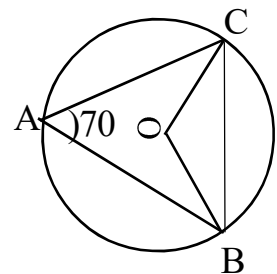
20. A box contains paper slips numbered from 1 to 10 and another box contains paper slips numbered 11 to 30

- If a slip is drawn from the first box without looking, what is the probability to get an even number ?
- If a slip is drawn from the second box without looking, what is the probability to get an odd number ?
- All the paper slips from both the boxes are put into another box and a slip is drawn, what is the probability of that number to be odd?

21. a) In the figure O is the centre of the circle and $\angle A=70^\circ$.

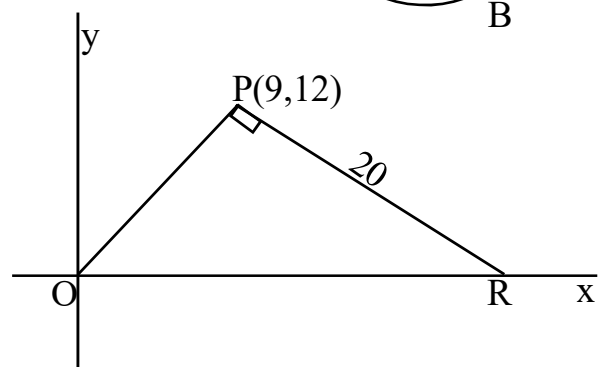
What is the measure of $\angle BOC$?

- Draw a triangle with circumradius 3cm and two angles 70° and 55° .

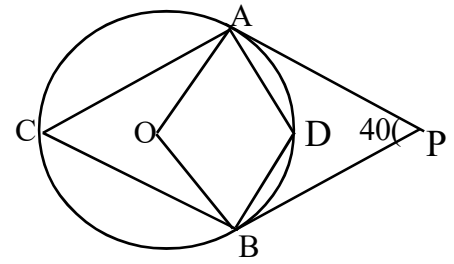


22. In the figure, $P(9, 12)$, $\angle P=90^\circ$ and $PR=20\text{cm}$

- Write the coordinates of the vertex O
- Find the length of OP .
- Find the length of OR .
- Find the coordinates of circum centre of this triangle.



23. In the figure, O is the centre and PA, PB are tangents to the circle. If $\angle P = 40^\circ$ then, find the measure of following angles.



- $\angle AOB$
- $\angle C$
- $\angle D$

Section: B

Answer any one of the question from 24 and 25 [4 scores (1x4=4)]

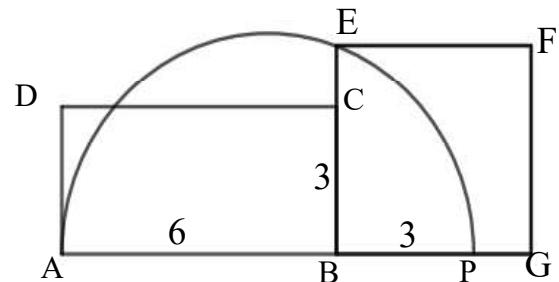
24. Algebraic form an arithmetic sequence is $6n+2$.
- Find the first term.
 - Find the common difference.
 - Find the algebraic form of sum of the sequence.
25. A boy of height 1.5metre standing at 20 metres away from the foot a tree, sees the top of the tree at an elevation of 40° .
- Draw a rough figure using these measures.
 - Find the height of the tree.
- [$\sin 40 = 0.64$, $\cos 40 = 0.76$, $\tan 40 = 0.84$]

PART-4

Section : A

Answer any three from question 26 to 29 [each carries 6 score (3x6=18)]

26. In the figure, AP is a diameter of the circle. ABCD is a rectangle and BEFG is a square. $AB = 6\text{cm}$, $BC = BP = 3\text{cm}$.



- What is the area of this rectangle?
 - What is the area of square?
 - Draw a rectangle with sides 7cm, 3cm .
Draw a square of equal area.
27. Perimeter of a rectangle is 44 cm, area 117 square centimetre.
- If one side is x , then , what is the second side?
[$x - 44$, $44 - x$, $x - 22$, $22 - x$]
 - Write a second degree equation representing the area.
 - Find the length of sides.

28. $P(x) = x^2 - 5x + 10$
- What is $P(0)$?
 - Find $P(2)$.
 - Which number should be subtracted from $P(x)$ to get a polynomial for which $x-2$ is a factor?
 - Find $P(x) - P(2)$.
 - Write $P(x) - P(2)$ as the product of two first degree polynomials.
29. A man standing at some distance from the foot a tree, sees the top at an elevation of 40° . After walking 30 metres towards the tree, he sees the top at an elevation of 80° .
- Draw a rough figure,
 - Find the height of the tree.
 - Another man standing on opposite side of the tree sees the top at an elevation of 45° . How far the man is standing from the foot of the tree?
[$\sin 40 = 0.64$, $\cos 40 = 0.76$, $\tan 40 = 0.83$, $\sin 80 = 0.98$, $\cos 80 = 0.17$, $\tan 80 = 5.67$]

Section : B

Answer any two questions from 30 to 32 [each carries 6 scores (2x6=12)]

30. Table below shows some families sorted according to their income.

Income (Rupees)	Number of families
4000 - 5000	4
5000 - 6000	6
6000 - 7000	9
7000 - 8000	10
8000 - 9000	12
9000 - 10000	9
Total	50

- Which class contains median income?
 - According to the assumption, what is the income of 20th family?
 - What is the income of 25th family?
 - Find the median income.
31. A toy is in the shape of square pyramid. Its base edge is 10cm and height 12cm
- Find the slant height.
 - Find the total surface area?
 - What is the cost of painting 1000 such toys at the rate of 100 rupees per square metre?

32. A(1, 3), B(2, 5) are two points on a line.
- Write the coordinates of another point on this line?
 - What is the slope of this line?
 - Find the equation of this line?
 - What are the coordinates of the point where this line cuts the x axis?

PART-5

Section :A

Answer any two from questions 33 to 35 [each carries 8 scores (2x8=16)]

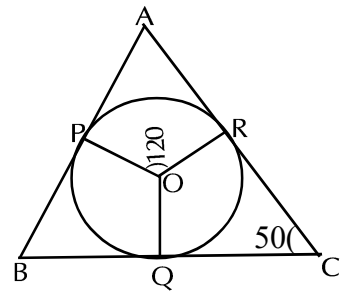
33. In the figure, O is the incentre of triangle ABC.

$\angle C=50^\circ$, $\angle POR=120^\circ$

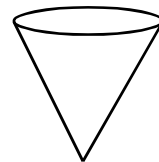
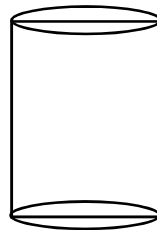
- Find the measure of following angles.

$\angle OQC$, $\angle QOR$, $\angle B$

- Draw a triangle with inradius 2cm and two angles 70° , 60° .

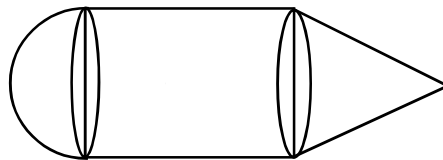


34. a) Figures of some solids made of metal are given.
Their common radius is 3cm, height of the cylinder is 10cm and height of the cone is 4cm.



Find the volumes of the solids.

Above solids are joined together to form a new solid as in the figure.



- What is the weight of the new solid if the weight of 1 cubic centimetre of metal is 5gm ?

35. a) Find the sum of first 20 natural numbers.
- Find the sum of first 20 terms of the arithmetic sequence 3,6,9,.....
 - What the sum of first 20 terms of the arithmetic sequence with algebraic form $3n+4$
 - What is the difference between the sum of first 20 terms and sum of next 20 terms of the arithmetic sequence 7,10,13,....?
 - If the sum of first 20 terms of an arithmetic sequence is 730. Write this sequence.