

# S.S.L.C Model Questions Paper 2021

Maximum Score: 80

Time: 2½ hrs.

## MATHEMATICS

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### Instructions

- ◆ 20 minutes is given as cool - off time. Use cool-off time to read the question and plan your answers.
  - ◆ Attempt the questions according to instructions.
  - ◆ Keep in mind the score and the time while answering the questions.
  - ◆ The maximum score for questions from 1 to 45 will be 80.
  - ◆ Simplify using the approximate values of  $\pi$ ,  $\sqrt{2}$ ,  $\sqrt{3}$  only if it is asked to do in questions.
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### For questions from 1 to 5 one score each.

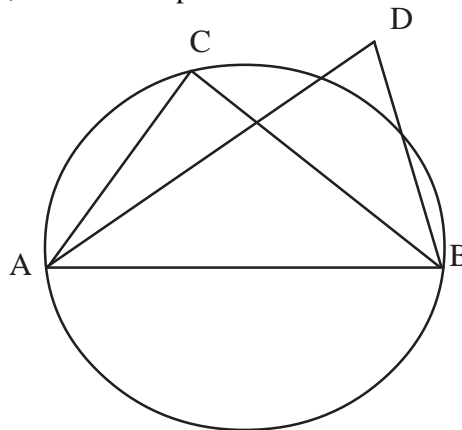
(Choose the correct answer from the bracket)

1. Sum of first 7 terms of arithmetic sequence is

2, 8, 14, 20, 26, 32, 38

(140, 138, 145, 200)

2. In the figure AB is the diameter of the circle, and C is the point in the circle what is  $\angle D$



( $98^\circ$ ,  $90^\circ$ ,  $88^\circ$ ,  $91^\circ$ )

3. Square of a number is 81. Which is the number?

(81, 3, 9, 18)

4. Total surface area of a sphere is  $100 \text{ cm}^2$ . It is cut in two hemisphere, the area of plane face of one hemisphere is

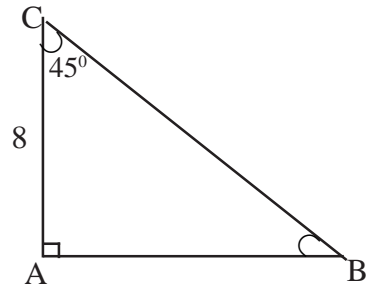
( $75 \text{ cm}^2$ ,  $50 \text{ cm}^2$ ,  $100 \text{ cm}^2$ ,  $25 \text{ cm}^2$ )

5. Which is the point on X - axis?

((3,4), (8, 0), (0, 7), (0,  $\sqrt{2}$ ))

**From questions 6 to 10, two scores each.**

6. In the Figure ABC is right triangle with  $\angle A = 90^\circ$  and  $\angle C = 45^\circ$



- a) What is  $\angle B$ ?
- b) If  $AB = 8\text{cm}$ , then find  $BC$ ?

7. The score of 5 students in mathematics examination are given below

28, 37, 25, 42, 18

Find the median score?

8. If  $P(x) = 3x^2 - 2x + 5$  then find  $P(1)$

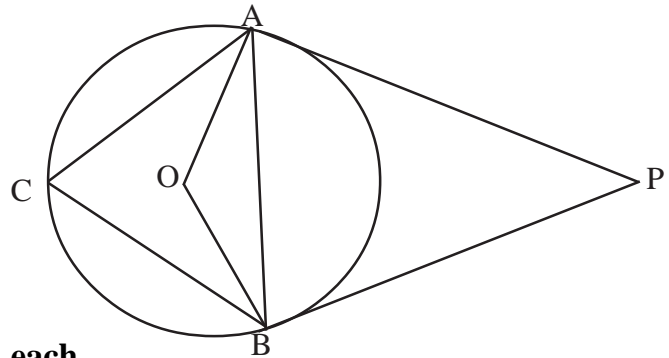
9.  $(x-2)^2 + (y-3)^2 = 5^2$  is an equation of a circle

- a) Find co-ordinates of its center?
- b) Find the radius of the circle?

10. In the figure PA and PB are the tangents to the circles with centre O

If  $\angle P = 78^\circ$ , then find

- (a)  $\angle OAP$ ?
- (b)  $\angle AOB$ ?



**Questions from 11 to 20 carries 3 score each.**

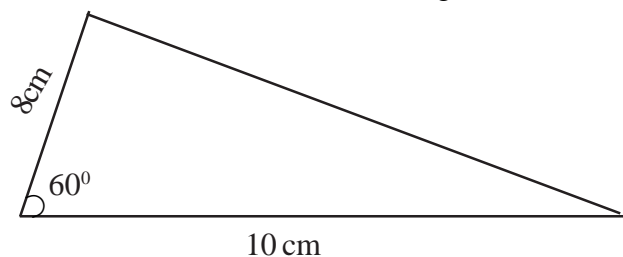
- 11. (a) Is 2021 belongs to the arithmetic sequence with first term 4 and common difference 7?
- (b) Check whether 2021 is the difference of two terms of the above sequence.

12. Draw a triangle with circumradius 4 cm and two angles  $27^\circ$  and  $34^\circ$

- 13. (a) How many two digit numbers are there?
- (b) What is the probability of both digits being the same?
- (c) What is the probability of both digits being different?

14. In a rectangle length is 4 cm longer than its breadth. Its area is  $60\text{ cm}^2$ . Find length and breadth.

15. Find the area of the triangle?



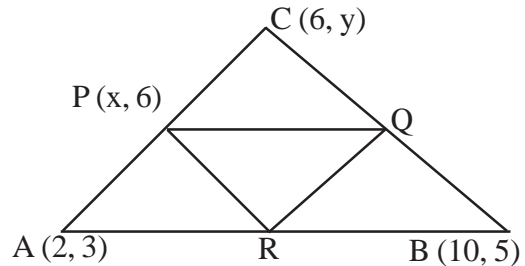
16. Sides of a rectangle is parallel to the axis of co-ordinates. The co-ordinate of two opposite Vertices are  $(-2, -4)$  and  $(5, 6)$ . Find co-ordinates of the other vertices of rectangle?

17. A sector with radius 15 cm is rolled up and made a cone with base radius 9

(a) What is the slant height of the Cone?

(b) What is the height of the Cone?

18. In the figure P,Q and R are mid points of sides of triangle ABC.



(a) Find  $x$ ?

(y) Find  $y$ ?

(c) Find co ordinate of Q?

19. Sides of a right triangle are 6 cm, 8 cm and 10 cm

(a) Find area of the triangle?

(b) Find circumradius of the triangle?

(c) Find inradius of the triangle?

20. Heights of six students in a class are given below

100, 110, 96, 120, 104, 106

(a) Find mean height?

(b) Find median height?

**For questions 21 to 30 four score each**

21. In a polynomial  $P(x) = x^2 - 2x + 5$

(a) Find  $P(2)$ ?

(b) Find  $P(x) - P(2)$ ?

(c) Write a factor of  $P(x) - P(2)$ ?

22. In a Box contains 50 balls. Some balls are black in colour and remaining are white in colour. The probability of getting white ball in  $\frac{2}{5}$ , A ball is taken from the box.

a) What is the probability of getting a black ball?

b) How many black balls are there?

c) How many white balls are to be added to the box, to make probability of getting white ball is  $\frac{1}{2}$ ?

23. Sum of first term and 21<sup>st</sup> term of an arithmetic sequence is 1000.

a) Find sum of 10<sup>th</sup> term and 12<sup>th</sup> term?

b) Find 11<sup>th</sup> term?

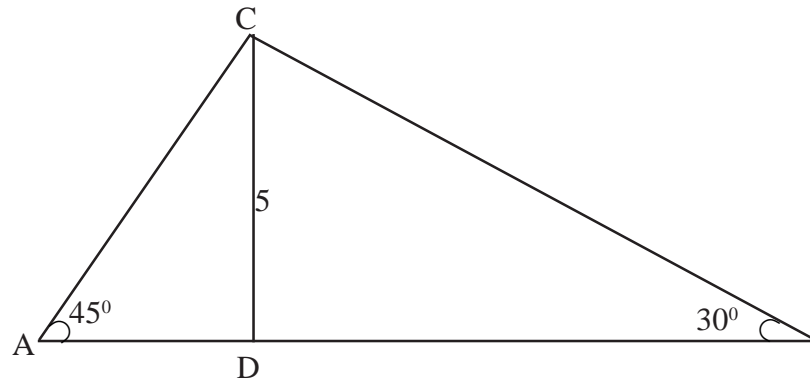
c) If common difference is 2, then write its algebraic form?

24. In quadrilateral ABCD  $\angle A = 60^\circ$ ,  $\angle B = 110^\circ$  and  $\angle C = 100^\circ$
- Find  $\angle D$
  - If a circle is drawn which passes through A, B and C. What is the position of D with respect to the circle?
  - If a circle is drawn with AC as diameter. What is the position of D with respect to circle?
25. (a) What is the area of a square with perimeter 100 cm?
- (b) Prove that there is no rectangle with area above  $625 \text{ cm}^2$  and perimeter 100 cm.
26. Co-ordinates of three vertices of a triangle are  
(2, 3), (8, 3) and (8, 11). Show that the triangle is right?
27. A circular plate with radius 15 cm cut into 5 equal sectors.
- What is the central angle of one sector?
  - What is the slant height of the cone made up of folding this sector?
  - Find base radius of the cone?
  - Find curved surface area of this cone?
28. Draw a circle with radius 3 cm and mark a point 7 cm away from its center. Draw tangent to the circle from that point and measure its length.
29. The table below shows the workers of a factory sorted according to their daily wages.

Daily Wages (Rs.)	Number of workers
500	3
600	7
700	9
800	8
900	5
1000	3

- Which person is the median age?
- Find median age?

30.



In triangle ABC, CD is the perpendicular from C to AB,  $\angle A = 45^\circ$ ,  $\angle B = 30^\circ$ , find perimeter of the triangle ABC?

**From question 31 to 45, 5 score each.**

31. a) Find  $1 + 2 + 3 + \dots + 100$ ?

b) Find  $2 + 4 + 6 + \dots + 200$ ?

c) Find  $4 + 8 + 12 + \dots + 400$ ?

d) Find  $6 + 10 + 14 + \dots + 402$ ?

32. Draw a rectangle with sides 6 cm and 4 cm. Draw a square having same area of above rectangle.

33. A box contains 50 slips of numbered from 1 to 50. If one slip taken from the box with out looking.

a) What is the probability if number in the slip is even?

b) What is the probability if the number in the slip is a square number?

c) What is the probability if the sum of digit in the slip is 9?

34. Length of a rectangle is two centimeter longer than two times its breadth, the diagonal is 1cm greater its length centimeter greater than its length. If breadth is taken as x then

a) Write algebraic statement of its length using x.

b) Write algebraic statement of its diagoal using x

c) Find length and breadth?

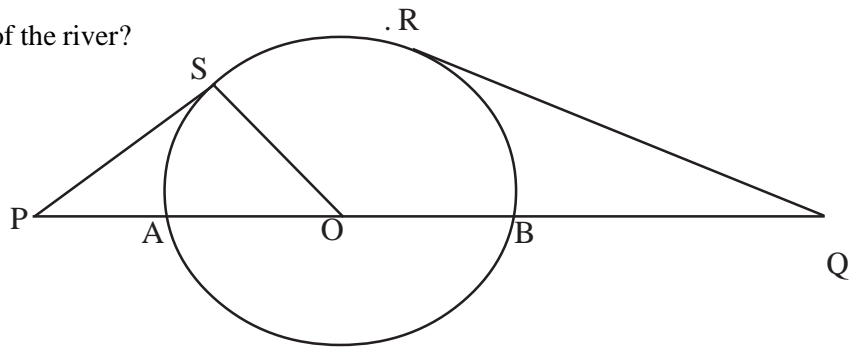
35. Draw axis of co-ordinates and mark the following points.

$(-2, 3)$ ,  $(5, 4)$ ,  $(0, 2)$

36. A man standing in the bank of a river saw the top of a tower on the other bank with angle of elevation  $45^\circ$ . He walked backward 15 meter and look the same tower, if sees in an angle of elevation  $30^\circ$

- a) Draw an approximate figure?
- b) Find height of the tower?
- c) Find width of the river?

37.



In the figure O is the center of the circle. PS and QR are tangents to that circle. If  $OQ = 17$  cm,  $QR = 15$  cm and  $PA = 2$  cm.

- a) Find the radius of the circle?
  - b) Find perimeter of triangle POS?
- 38.
- a) Find slope of the line joining (3, 2) and (6, 4)?
  - b) (X, 12) is the point on the above line . Find value of X?
  - c) Find the co-ordinates of any other two points on the line?
- 39.
- a) Two cones have the same volume and second cone's radius is double of the first. Find the ratio of their height?
  - b) If the radius of first cone is 5 cm. and slant height is 13 cm. find height of the two cones.
- 40.
- a) If (X-1) is the factor of polynomial  $P(X) = (X+1)(X + 2) + k$ . Then find k?
  - b) Is (X-3) is the factor of P(X)?
  - c) Write a factor of polynomial  $P(X) - P(3)$
41. The table below show the students in a class sorted according to their height.

Height (cm)	Number of students
120	3
125	8
130	6
135	5
140	6
145	4
150	2

a) Find height of 17<sup>th</sup> student?

b) Find median height?

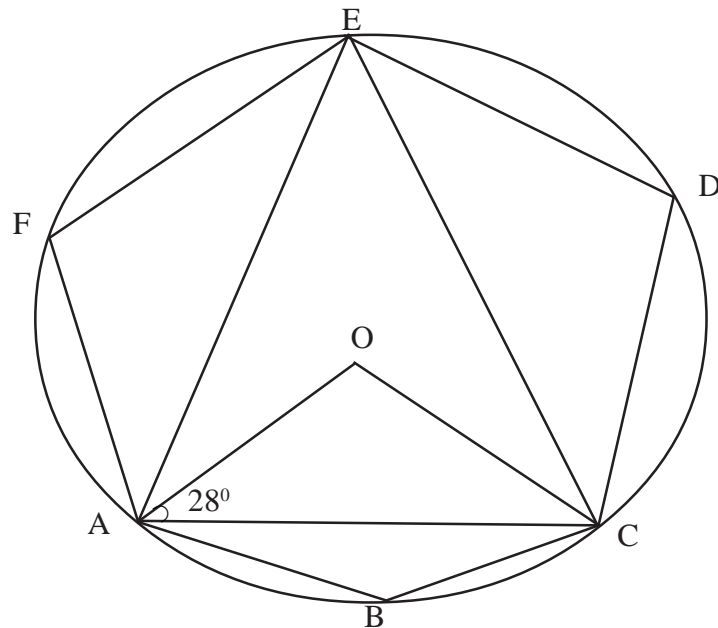
42. Consider arithmetic sequence 5, 8, 11, ....

a) Find 11<sup>th</sup> term of the above sequence?

b) Write algebraic form of the above sequence?

c) Prove that there is no square number in the sequence ?

43



A,B,C,D,E and F are points on circle with center O

$$\angle OAC = 28^\circ$$

a) Find  $\angle AOC$ ?

b) Find  $\angle ABC$ ?

c) If  $\angle EAO = 20^\circ$ , then find  $\angle EDC$ ?

d) If  $AB = BC$ , then find  $\angle BCA$ ?

44. (1, 2), (7,10) are the end point of diameter of a circle.

a) Find the co-ordinate of its center?

b) Is (0, 3) is the point on the circle?

c) If (1, 10) is one endpoint of the diameter find the other endpoint?

45. Radius of a sector is 10 cm and its central angle is  $216^\circ$

a) Find slant height of the cone made up from this sector?

b) Find base radius of the cone?

c) Find height of the cone?

d) Find volume of the cone?

# SSLC Model Questions Paper - 2021

Maximum Score : 80

Time : 2 1/2 hrs.

## MATHEMATICS

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### From 1 to 5 carries 1 mark each choose the correct answer from the bracket.

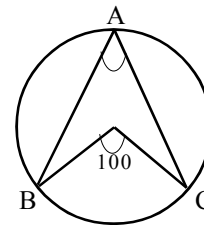
1. Common difference of the arithmetic sequence

5, 8, 11, 14, .....

(3, 6, 13, 4)

2. In the fig  $\angle BOC = 100^\circ$  and find  $\angle BAC$

( $25^\circ$ ,  $200^\circ$ ,  $50^\circ$ ,  $40^\circ$ )



3. Area of a garden in the shape of a square is  $225 \text{ m}^2$ , find the length of its side

(25, 15, 20, 35)

4. Find the median of the observations

14, 17, 20, 23, 26, 29, 32

(14, 23, 32, 20)

5. If  $P(x) = x + 4$  find  $P(1)$

(-4, -6, 5, 3)

### Questions form 6 to 10 carries 2 marks each

6. Check whether 2021 is a term of the sequence

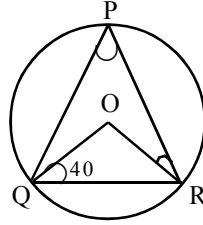
5, 9, 13, 17 .....



7. In figure O is the centre of the circle. P, Q, R are points on the circle. If  $\angle OQR = 40^\circ$  find

a)  $\angle QRO$

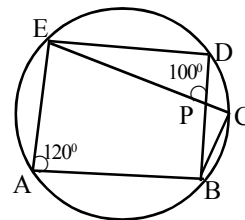
b)  $\angle P$



8. Product of two consecutive counting numbers is 156
- If one number is  $x$ , what is the other number
  - Form the equation.
9. a) Find the co-ordinates of another point on the line joining the points (4, 3) and (6, 3)
- Find the Distance between the points (4, 3) and (6, 3)
10. If the length of the diagonal of a square is 20 cm, find its side.

**Questions from 11 to 20 carries 3 marks each**

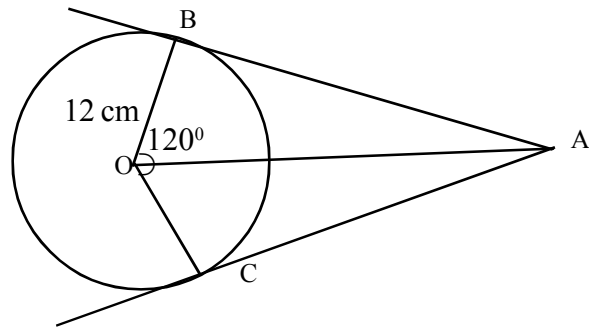
11. a) Which number should be added to  $x^2 + 10x$  to make it a perfect square.
- If  $x^2 + 10x = 75$ , find the value of  $x$
12. If 8<sup>th</sup> term of an arithmetic sequence is 53 and its 15<sup>th</sup> term is 102.
- Find common difference?
  - Find the first term?
  - Write the sequence?
13. In figure O is the centre of the circle, A, B, C, D and E are points on the circle. If  $\angle EAB = 120^\circ$ ,  $\angle EPD = 100^\circ$ , find  $\angle EDB$ ,  $\angle ECB$  and  $\angle DBC$



14. If the side of an equilateral triangle is 6 cm.
- What is the measurement of one angle?
  - Find its circumradius?
15. A (-2, 3), B (6, 9) then

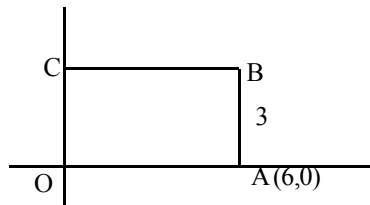
- a) Find the co-ordinates of the centre of the circle with diameter AB.
- b) If C (-3, 5), D (5, -1), can CD be a diameter of this circle.
16. In figure O is the centre of the circle. AB, AC are tangents to circle,  $\angle BOC = 120^\circ$  radius of the circle is 12 cm. find

- a)  $\angle OBA$
- b)  $\angle AOB$
- c) Length of AB



17. A sector with central angle  $60^\circ$  and radius 12 cm is folded and made into the form of a cone. find
- a) Slant height of the cone?
- b) Base radius of the cone?

18. In figure breadth of the rectangle is 3 cm. Find the co-ordinates of the points O, B and C.

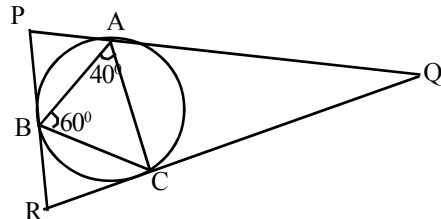


19. Draw a triangle with two angles  $50^\circ$  and  $70^\circ$  and its circumradius 3.5 cm
20. 4 more than the sum of perimeter and area of a square is 100.
- a) If the side of the square is  $x$  find the perimeter and area in terms of  $x$ ?
- b) Find the length of one side of the square ?

**Question from 21 to 30 carries 4 marks each.**

21. Two dice are thrown simultaneously.
- a) Which are the possible outcomes?
- b) What is the probability that both numbers are odd?
- c) What is the probability that one of the number is a perfect square?

22. In figure  $\angle A = 40^\circ$ ,  $\angle B = 60^\circ$ , find  $\angle P$ ,  $\angle Q$ ,  $\angle R$



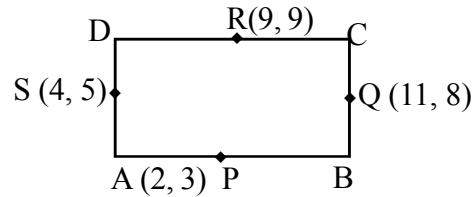
23. Sum of 7 consecutive terms of an arithmetic sequence is 133 and its common difference is 5.
- Find fourth term?
  - Find first term?
  - Write algebraic expression of the sequence?
  - Can 2020 be the difference of any two terms of the sequence?
24. Daily wages of 39 workers in a company are given in the table. Find the median wage

Daily Wage	Number of workers
250	2
300	3
350	6
400	9
450	8
500	7
550	4

25. Present age of Vinu is X
- After 6 years what will be the age of Vinu.
  - Write the product of Vinu's present age and age after 6 years.
  - If this product is 91. find vinu's present age?
26. A boy is standing 50m away from a tower. He observed the top at an angle of elevation  $30^\circ$
- Draw a rough figure
  - Find the height of the tower?
27. The co-ordinate of the opposite vertices of a rectangle are (7, 8) and (1, 3)
- Write the co-ordinates of other two vertices.
  - Find the length of the sides of the rectangle?
28. Draw a circle with radius 3 cm. Mark a point 7 cm away from the centre. Draw tangents from the points to the circle. Measure the length of the tangents.
29. The slant height of cone is 20 cm. and base radius is 10 cm. Find the central angle and radius of the sector used to make the cone?

30. P, Q, R and S are the mid points of the sides of quadrilateral ABCD.

a) Write the co-ordinates of all the vertices of the quadrilateral.



b) Find the co-ordinate of the point P?

**Question 31 to 45 carries 5 marks each**

31.  $n^{\text{th}}$  term of an arithmetic sequence  $x_n = 4n + 7$

a) Form the sequence?

b) Find 50<sup>th</sup> term?

c) Find common difference?

d) Is there perfect square term in the sequence, justify your answer?

32.  $P(x) = x^2 + 2x - 5$ , find

a) Find  $P(1)$ ?

b) Find  $P(x) - P(1)$ ?

c) Find the factors of  $P(x) - P(1)$ ?

33. In Quadrilateral ABCD  $\angle A = 70^\circ$ ,  $\angle B = 50^\circ$ ,  $\angle C = 120^\circ$

a) Find measure of  $\angle D$ ?

b) A circle is drawn passing through A, B and C. Where will be the position of D?

c) If a circle drawn with AC as diameter where will be D?

34. In one box there are 9 blue pearls and 11 red pearls. In another box there are 6 blue and 7 red pearls.

Without looking one pearl is taken

a) To get a blue pearl, from which box is better.

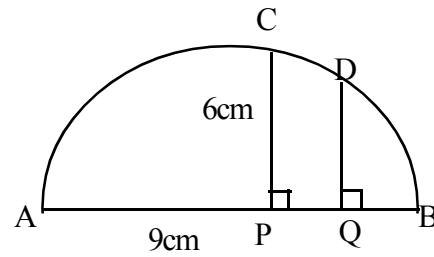
b) What is the probability of getting a red pearl from the first box?

c) If all pearls kept in a box and a pearl is taken without looking what is the probability it is a red one?

35. In a right triangle, the smallest side is 4m less than the hypotenuse. Third side is 2m greater than the smallest side.

a) If the smallest side is  $x$ , find the other two sides in terms of  $x$ ?

- b) Form an equation connecting the sides?  
 c) Find the length of the smallest side?  
 d) Find the length of other sides?
36. Distance between the two buildings of different heights is 16m. Angle of elevation of the top of the small building from the bottom of the tall building is  $45^\circ$  and Angle of elevation of the top of the tall building from the bottom of the small building is  $60^\circ$ . Find the height of the buildings.
37. a) Write the co-ordinates of a point on the x axis other than the origin.  
 b) Write the co-ordinates of point on the y axis other than the origin.  
 c) Find the length of the line joining these points?  
 d) Find the co-ordinates of the midpoint of this line?  
 e) If a circle is drawn with this line as diameter, will it pass through the origin?
38. C is a point of the semicircle whose diameter is AB. PC is perpendicular to AB. AP = 9cm  
 PC = 6cm.



- c) QD is perpendicular to AB, QB = 2cm. What is the length of QD?
39. Radius of the base of a cone is 8 cm, slant height is 10 cm.  
 a) Find its curved surface area?  
 b) Find its total surface area?  
 c) Find its volume?
40. A(2, 3), B (5, 4), c (6, 7) are the vertices of a triangle.  
 a) Find AB, BC and AC?  
 b) Prove that ABC is an isosceles triangle.

41. Find the median of the monthly income of some families

Monthly Income	3000	7000	9000	10000	11000	12000	13000
No.of families	6	3	11	13	7	4	2

- 42 Write the sequence of multiples of 7 between 200 and 500. How many terms are there? Find there sum?
43. Draw a rectangle of length 5cm and breadth 4 cm. Draw the square of same area.
44. a) Find the slope of the line joining the points (-1, 3) and (3, 6)?  
b) Write any other two points an this line.  
c) (x, y) in s point on this line, prove that (x +4), (y + 3) is also a point on this line.
45. Draw a circle of radius 2.5cm. Draw a triangle whose angles are  $50^\circ$  and  $60^\circ$  and whose sides touch the circle.

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SSLC Model Question Paper

MATHS

SET 3

Instructions

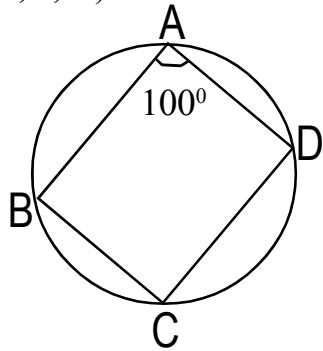
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For questions from 1 to 5 one score each.

1. Write the common difference of the arithmetic sequence 3,7,11,.....

(1, 3, 4, 7 )

2.



In the figure A,B,C,D are points on the circle and  $\angle A = 100^\circ$ . What is the measure of  $\angle C$  ?

$50^\circ, 80^\circ, 90^\circ, 200^\circ$

If  $(x+2)^2 = 10^2$ , find the value of x.

[ 3, 5, 8, 10 ]

The median of 5, 10, 15, 20, 25

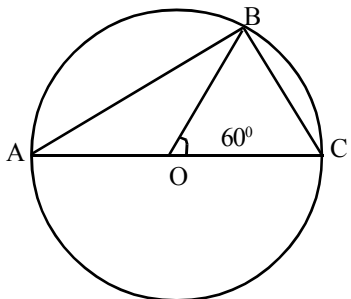
[ 5, 10, 15, 20 ]

The co-ordinates of origin is

[ (0,0), (1,0), (0,1), (1,1) ]

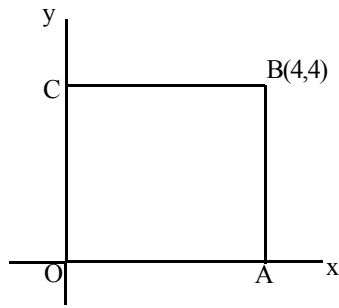
From 6 to 10 two score each.

What is the next term of the arithmetic sequence 3, 10, 17, ..... ? What is its 10th term?

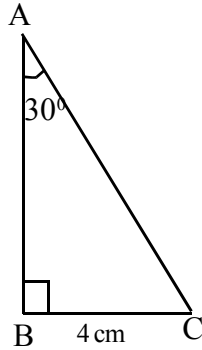


In the figure O is the centre of the circle with diameter AC. B is a point on the circle. Find measure of angles  $\angle ABC$  and  $\angle A$ .

8.



In the figure point B is (4,4). Perpendiculars from B to x and y axes meet at A and C respectively. Write the co-ordinates of points A and C.



In the triangle ABC,  $\angle A = 30^\circ$ ,  $\angle B = 90^\circ$ ,  $BC = 4$  cm.

- i) Find measure of  $\angle C$
- ii) Find length of AC.

10. When each side of a square was increased by 3m, the area became  $64\text{m}^2$ . What was the length of a side of the original square?

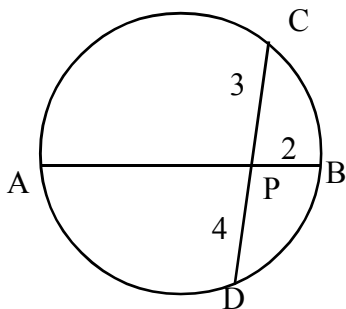
**From 11 to 20 three score each.**

11. The length of a rectangle is 2 cm longer than its breadth.

- i) If the breadth is x cm, What is the length?
- ii) If we add 1 to area of rectangle results 81, find its length and breadth.

12. Find the following sums.

- i)  $1 + 2 + 3 + \dots + 20$
- ii)  $2 + 4 + 6 + \dots + 40$
- iii)  $3 + 5 + 7 + \dots + 41$



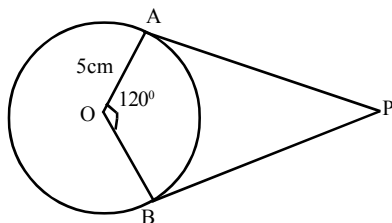
In the figure P is a point on the diameter AB of the circle. The chord CD pass through P.

$CP = 3$  cm,  $PD = 4$  cm,  $PB = 2$  cm.

- i) Find the length of AP.
- ii) Find the radius of the circle.



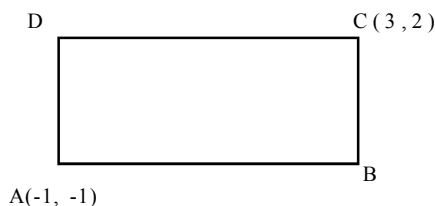
14.



In the figure PA, PB are tangents to the circle with centre O.  $\angle AOB = 120^\circ$ .  $OA = 5$  cm.

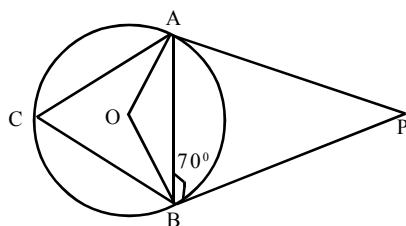
- i) Find the measure of  $\angle OAP$ .
- ii) Find length of PA and PB.

15.



ABCD is a rectangle with sides parallel to axes. Co-ordinates of A and C are (-1, -1) and (3,2) respectively. Find the co-ordinates of B and D.

16.



In the figure PA, PB are tangents to the circle with centre O. C is a point on the circle  $\angle ABP = 70^\circ$ . Find the measures of following angles.

- i)  $\angle C$
- ii)  $\angle AOB$
- iii)  $\angle P$

17. A cone of maximum size is carved out from a wooden square prism of base edge 8 cm and height 10 cm.

- i) Write the base radius of the cone.
- ii) Find the volume of the cone.

18. One is asked to say a two - digit number. What is the probability of both digits being the same?

19. Draw a circle of radius 3 cm. Draw a diameter AB. Draw tangents through A and B.

20. Find the mean and median of following numbers.

32, 18, 36, 24, 30, 26, 22, 28, 20, 34.

**From 21 to 30 four score each.**

21. Numbers from 1 to 20 are written on slips of paper and put in a box. A slip is to be drawn from it. What is the probability to get following numbers.

- i) Odd number
- ii) multiple of 3
- iii) perfect square number
- iv) two - digit number

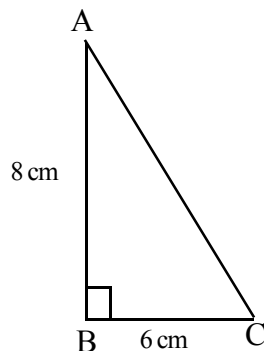
22. Draw a circle of radius 3 cm. Draw tangents from a point 6 cm distant from the centre of the circle.

23. The sum of first and 20th terms of an arithmetic sequence is 60.
- What is the sum of second and 19th terms?
  - Find the sum of first 20 terms.
  - If 10th term is 28, find the common difference.
24. The table below shows scores of students in an examination. Find the median.

Score	10	20	30	40	50
No. of students	2	4	8	6	1

25. Perimeter of a rectangle is 60 cm.
- What is the sum of length and breadth?
  - If length is  $x$  cm, what is breadth?
  - If the area of the rectangle is  $200\text{cm}^2$ , find the length and breadth.

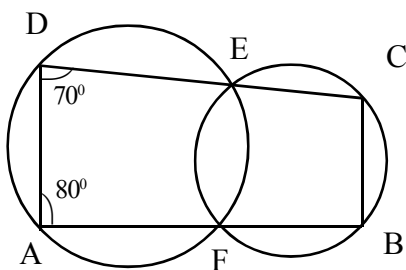
26.



In triangle ABC,  $\angle B = 90^\circ$   $AB = 8$  cm,  
 $BC = 6$  cm.

- Find length of AC.
- Find the values of  $\sin A$ ,  $\cos A$ .

27. Draw  $x, y$  axes and mark the points  $A(-1,-2)$ ,  $B(4, -2)$ ,  $C(5,2)$ ,  $D(0,2)$ . What type of quadrilateral is ABCD?



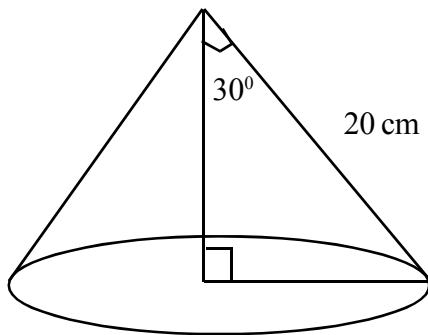
In the figure, two circles intersect at E and F and lines through these points meet the circles at A,B,C,D.  $\angle A = 80^\circ$  and  $\angle D = 70^\circ$   
 Find measures of  $\angle B$  and  $\angle C$ .  
 What type of quadrilateral is ABCD?

29. A cone made by rolling up a sector of central angle  $60^\circ$  cut out from a circle of radius 12 cm.
- What part of  $360^\circ$  is  $60^\circ$  ?
  - What is the radius of cone?
  - What is the slant height of the cone?
  - Find the curved surface area of the cone.
30. Consider the polynomial  $P(x) = x^2 + 2x + 1$
- Find  $P(1)$
  - Find  $P(x) - P(1)$
  - Write one factor of  $P(x) - P(1)$

**From 31 to 45 five score each.**

31. Draw rectangle of sides 5cm, 3 cm. Draw square of equal area.
32. If  $A(1,2)$ ,  $B(9,2)$ ,  $C(7,4)$ ,  $D(4,6)$  are vertices of a quadrilateral, find the length of sides of the quadrilateral ABCD.
33. A boy standing at the edge of a river sees the top of a tree on the otherside at an elevation of  $60^\circ$ . Stepping 20m back, he sees it at an elevation of  $30^\circ$ . Find the width of the river and height of the tree.
34. The ratio of two cones are in the ratio 2:3 and their heights in the ratio 5:4.
- Find the ratio of volumes of these cones.
  - If the volume of first cone is  $20\text{cm}^3$ , find the volume of the second cone.
35. Third term of an arithmetic sequence is 34 and 6th term is 67.
- Find the common difference.
  - Find the first term.
  - Write the algebraic form.

36.



Slant height of a cone is 20 cm. The angle between slant height and height is  $30^\circ$ .

- Find the radius of cone.
- Find the total surface area of cone.
- 1000 such conical fire works are to be wrapped in colour paper. If the price of the colour paper is 2 rupees per square meter, what is the total cost?

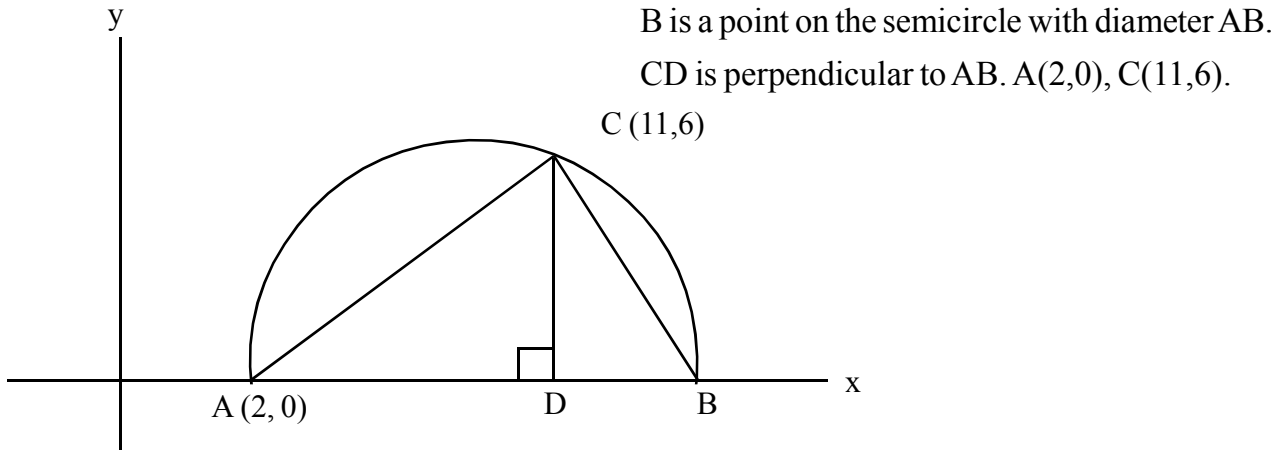
37. Draw a circle of radius 3 cm. Draw triangle of two angles  $50^\circ$ ,  $60^\circ$  and sides touching the circle.

38. The table below shows daily wages of workers of a company.

Daily wages	400	500	700	800	850
No. of workers	4	6	5	8	7

- i) How many workers are there in the company?
- ii) If the workers are arranged in the increasing order of their wages, what is the daily wage of 15th worker? what is the daily wage of 16th worker?
- iii) Find the median daily wage.
39. A box contains 5 black balls and 7 white balls. Another box contains 7 black and 15 white balls.
- i) What is the probability of getting black ball from the first box?
- ii) What is the probability of getting black ball from the second box?
- iii) To get a black ball, which box is better choice?
- iv) If all the balls are put in a single box, what is the probability of getting black ball from it?
40. Terms of an arithmetic sequence with common difference 6 are natural numbers.
- i) If  $x$  is a term of this sequence, write the next term.
- ii) Write the polynomial  $p(x)$  representing the product of two consecutive terms of this sequence.
- iii) What is the number to be added to make  $p(x)$  as perfect square?
- iv) If the product of two consecutive terms of this sequence is 112, find the terms.
41. Consider the polynomial  $p(x) = x^2 - 7x + 12$ .
- i) Find  $p(3)$
- ii) Write one factor of  $p(x)$
- iii) Find the second factor of  $p(x)$ .

42.



- i) What is the length of CD?
  - ii) Write the co-ordinates of D?
  - iii) Write the co-ordinates of B?
  - iv) Write the co-ordinates of the centre of this semicircle.
43. Find the length of diagonals of rhombus with side 10 cm and one angle  $80^\circ$ . Find the area of this rhombus.

$$\sin 40^\circ = 0.64, \quad \cos 40^\circ = 0.77, \quad \sin 80^\circ = 0.98, \quad \cos 80^\circ = 0.17$$

44. A line pass through A(2,4), B(6,12).
- i) Find the slope of this line.
  - ii) Write the co-ordinates of another point on this line.
  - iii) Write the equation of the line.
  - iv) Write the co-ordinates of points on x,y axes through which the line pass.
45. A,B,C are the points on the circle with centre O.

$$\angle OAB = 40^\circ$$

- i) Find the measure of  $\angle AOB$
- ii) Find the measure of  $\angle C$
- iii) What is the measure of  $\angle OAB + \angle C$
- iv) If  $\angle OAB = x^\circ$ ,  
find the measure of  $\angle OAB + \angle C$ .

