

**KSTA MALAPPURAM
ACCADEMIC COUNCIL**

**2021 SSLC MODEL QUESTION PAPER
MATHEMATICS**

TIME: 2.30 hrs

maximum marks : 80

Instructions

- * 20 minutes is given as cool-off time
- * Attempt the questions according to the instructions
- *The maximum score for questions from 1 to 45 will be 80

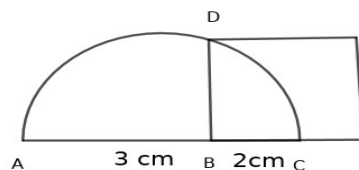
1 What is the common difference in the Arithmetic Sequence 2, 7, 12,.....? (1)

(2, 4, 5, 7)

2 .In the Given figure if AB= 3 cm, BC= 2 cm , what is the length of CD ? (1)

(6, $\sqrt{6}$, 5, $\sqrt{5}$)

3



In $\triangle DEF$, $\angle E = 90^\circ$, $\angle D = 45^\circ$, $DF = 3\sqrt{2}$, what is the length of EF ? (1)

(3, $3\sqrt{2}$, 6, 4)

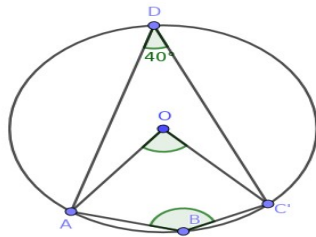
4 Which are the coordinates of the Y axis ? (1)
 [(2, 0), (0,2),(1,2),(-3,0)]

5 What is the distance between the coordinate (3,4) and origin?. (1)
 (7,12, 5, 6)

6 The algebraic form of an arithmetic sequence is $4n-1$

- a) What is the first term of this sequence? (1)
- b) What is the common difference of this sequence? (1)

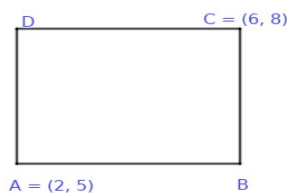
7 A,B,C, D are the points on the circle with 'O' as centre $\angle ADC = 40$
 a) What is the value $\angle AOC$ (1)
 b) What is the value $\angle ABC$ (1)



8 There are 6 black balls and 9 white balls in a box , if a ball is taken without looking into it,
 a) What is the probability that it is a black ball? (1)
 b) What is the probability that it is a white ball? (1)

9 Express the second degree algebraic form x^2-4 as a product of two first degree algebraic forms . (2)

10 In the figure the sides of a rectangle are parallel to the axes. If A(2,5), and C(6,8) are the coordinates of two points, then what are the coordinates of the points C and D?



(2)

11) The eight term of an arithmetic sequence having common difference 4 is 32 .
Find

- (a) first term (1)
(b) 15 th term (2)

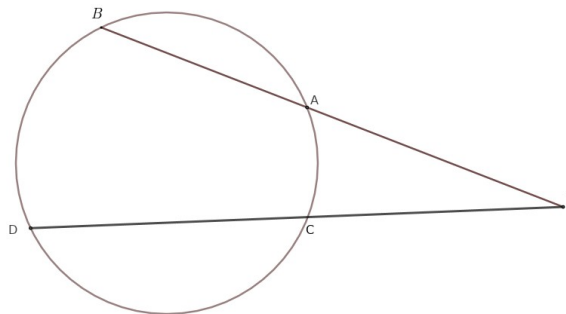
12) $x^2 + ax + b$ is a perfect square.

(1) If $b = 16$, find the value of 'a' (1)

(2) If $a = 10$, find the value of 'b' (2)

13) Vertices of a triangle are lies on the circle having radius 2.5 cm . Draw the triangle If two of this angles are 60° and 80°

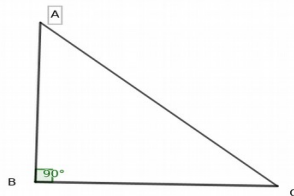
14) In figure, $PC = 3\text{cm}$, $PA = 4\text{cm}$ $AB = 5\text{cm}$



a) Find the length of PB (1)

b) Find the length of PD (2)

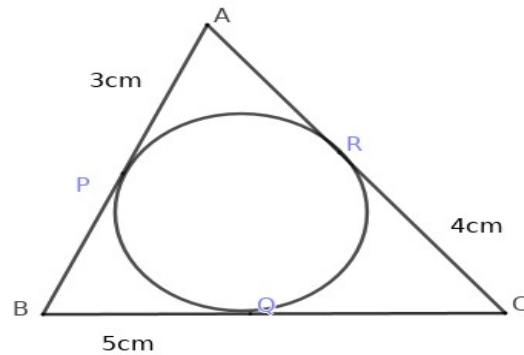
15) In triangle ABC , $AB = 12\text{cm}$, $BC = 5\text{cm}$



a) Find the length of AC (1)

b) Find the value of $\sin A$ and $\cos A$ (2)

16)



a) Find length of AR (1)

b) Find the perimeter of triangle ABC (2)

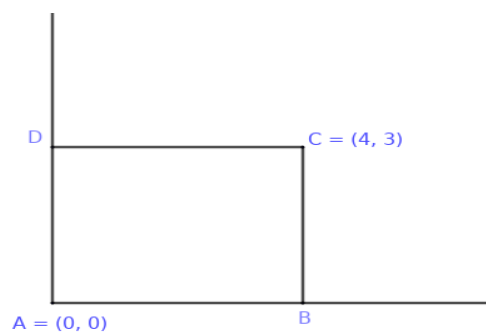
17) A sector of a circle having radius 10cm and central angle 72° rolling up to make a cone

Find

a) slant height of the cone. (1)

b) radius of the cone. (2)

18)



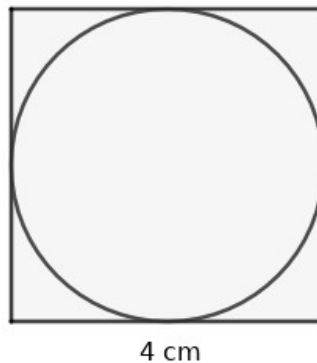
a) Write the coordinates of B (1)

b) Write the coordinates of D (1)

c) Find the perimeter of quadrilateral ABCD (2)

19) Draw a circle of radius 2.5cm and mark a point 'P' on it. Draw a tangent through the point 'P' (3)

20) Circle exactly fitting inside a square of side 4cm



a) Find Area of the circle (1)

b) Find the probability of a dot put, without looking to be within the circle (2)

21) Find the sum of

a) $1 + 2 + 3 + 4 + \dots + 20$ (1)

b) $3 + 6 + 9 + \dots + 60$ (1)

c) $7 + 10 + 13 + \dots + 64$ (2)

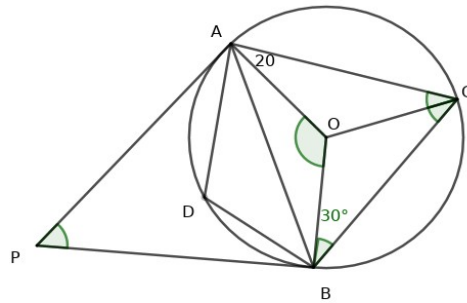
22) Consider the sequence 1, 4, 9, 16,.....

a) Find the next term (1)

b) Which is the first three digit number in these sequence ? (1)

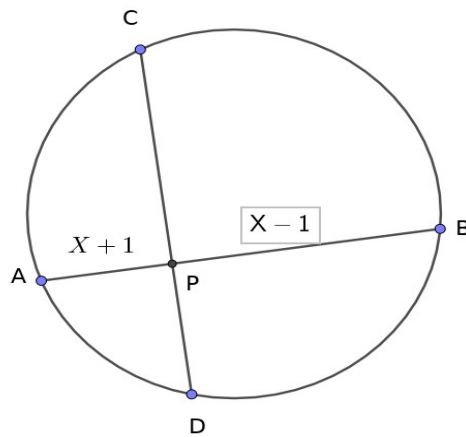
c) Is 1000 a term of this sequence why? (2)

23) PA and PB are the two tangents of a circle with centre 'O' , $\angle CBO = 30^\circ$
 $\angle CAO = 20^\circ$



- Find
- a) $\angle OCB$ (1)
 - b) $\angle ACB$ (1)
 - c) $\angle AOB$ (1)
 - d) $\angle APB$ (1)

24)



AB and CD are two chords of a circle intersect at a point P. If, $PC = 3\text{cm}$, $CD = 11\text{cm}$

- a) Find length of PD (1)
- b) Find $PA \times PB$ (1)
- c) Find $PC \times PD$ (1)
- d) Find length of PA and PB (1)

25) A box contains four slips numbered 1, 2, 3, 4 and another box contains 3 slips numbered 1,2,3. If one slip is taken from each, what is the probability of

1) both numbers being odd (1)

2) both numbers being even (1)

3) what is the probability of the sum being 4 (2)

26 $P(x) = x^2 - 7x + 15$

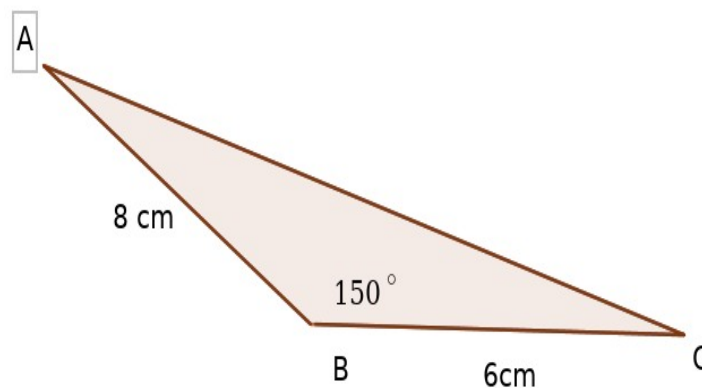
a) Find $P(3)$ (1)

b) $P(x) - P(3)$ (1)

c) Write $P(x)-P(3)$ as the product of two first degree polynomial (2)

27) Point 'A' is marked 5cm away from the centre of a circle of radius 3cm. Draw two tangents from the point A (4)

28



In triangle ABC, $AB=8\text{CM}$, $BC =6\text{CM}$ and $\angle ABC =150^\circ$

a) Draw the pedicular AD from A to BC out side the triangle and find its length (2)

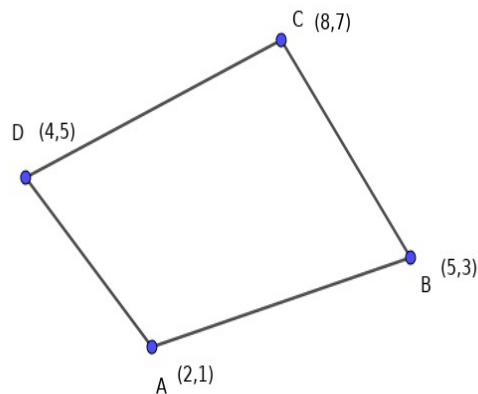
b) Find the area of triangle ABC (2)

29) Daily temperature record of a city in a week are given below
26°, 28°, 24°, 31°, 28°, 27°, 25°

a) Find mean temperature (2)

b) Find median of temperature (2)

30)



a) Find midpoints of AB, BC, CD and AD (2)

b) Write a suitable name for quadrilateral ABCD (2)

31) 5, 9, 13, 17,.....is an arithmetic sequence

a) Find its algebraic form (1)

b) Is 57 a term of this sequence (1)

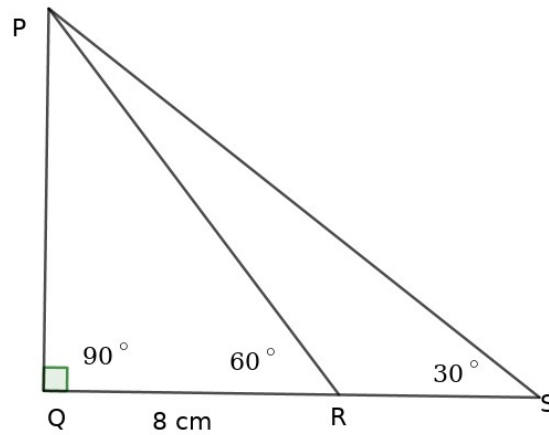
c) Find 20th term of this sequence (1)

d) Find the sum of first 20 terms (2)

32) Draw a rectangle of width 5cm and height 3cm then, Draw a square of the same area

(5)

33)

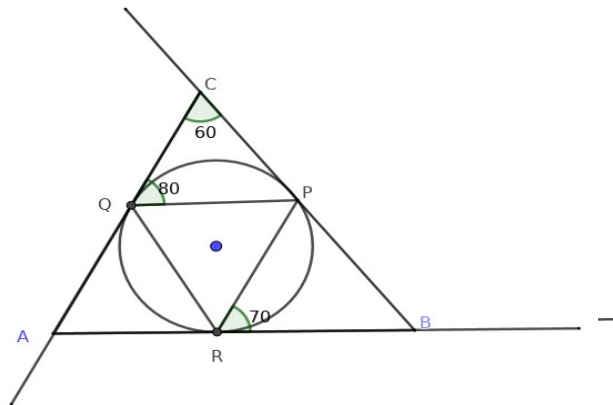


- a) Find the length of PQ (1)
- b) Find length of PR (1)
- c) Find $\angle PRS$ (1)
- d) Find length of RS and QS (2)

34) Draw coordinate of axes and mark the points

- a) $A(-5,3)$, $B(3,3)$, $C(3,8)$ and $D(-5,8)$ (2)
- b) What is the suitable name for this quadrilateral (1)
- c) Find the perimeter of quadrilateral $ABCD$ (2)

35) Draw a circle of radius 2.5cm. Draw a triangle of angle 60° and 80° with all its sides touching the circle



a) Find $\angle PQR$ and $\angle PRQ$ (2)

b) Find $\angle RPB$ (1)

c) Find $\angle A$ and $\angle B$ (2)

37) Sum of first 23 terms of a sequence is 690.

a) What is the 12th term of this sequence? (1)

b) What is the sum of first and 23rd term of this sequence? (2)

c) Find the sum of 5th and 19th term of this sequence. (2)

38) Diameter of a cone is 16 cm and its height is 15 cm.

a) Find radius of the cone. (1)

b) Find slant height. (2)

c) Find curved surface area of the cone. (2)

39) Daily wages of employees of a factory are given below.

Daily wage	Number of employees
200	3
300	6
400	5
500	4
600	7
700	3

a) If the employees are arranged in ascending order of their wages, what is the daily wage of 14th employee? (1)

b) If the employees are arranged in ascending order of their wages, what is the daily wage of 15th employee? (2)

c) Find the median wage? (2)

40) A tree breaks at a height of 40m and its broken part bends so that top of the tree touches the ground making an angle of 30 with the ground.

a) Draw a rough figure based on the given details. (1)

b) What is the length of broken part? (2)

c) what is the height of the tree. (2)

41) Length of a rectangle is 4cm more than its breadth. Area of the rectangle is 357 sq.cm

a) If the breadth is x cm, write its length in terms of x . (1)

b) Write an algebraic equation in connection with length, breadth and area of this rectangle (2)

c) Find length and breadth of the rectangle. (2)

42) Find slope of the

a) line joining the points (5,4) and (8,7) (1)

b) Check whether (2,3) a point on this line? (2)

c) Find two more points on this line. (2)

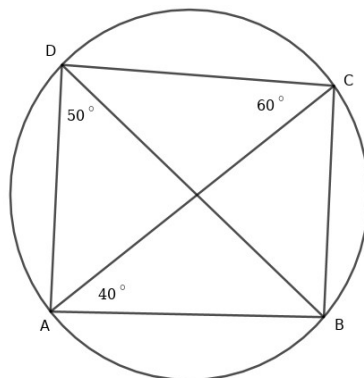
43) If the base radii of two conical vessels are in the ratio 2:3 and the heights are in the ratio 4:5

a) If the base radius and height of the first vessel is $2r$ and $4h$, write the base radius and height of the second vessel. (2)

b) Find the ratio of the volume of the vessels. (1)

c) If the volume of the first vessel is 160 litres. Find volume of the second vessel. (2)

44



a) Find $\angle A + \angle C$ (1)

b) Find an angle from the figure equal to $\angle BDC$ (1)

c) what is the measure of $\angle ACB$ (1)

d) Find $\angle ABC$ (2)

45)

5
8 11
14 17 20

.....

- a) Write the next line (1)
- b) How many numbers are there in 10th line (1)
- c) what are the first and last numbers in 10 th line? (1)
- d) Find the sum of the numbers in 10 th line. (2)