Mn / Sithyvinayakar Hindu College(National School – Mannar)

மன் / சித்திவிநாயகர் இந்துக்கல்லூரி (தேசிய பாடசாலை – மன்னார்)

First Term Exam – 2019

முதலாந்தவணைப்பரீட்சை- 2019

Grade -11 தரம் - 11	32 - Mathematics Paper – 1 32 - கணிதம் வினாத்தாள் - 1	Time – 2 Hour நேரம் - 2 மணித்தியாலம்

சுட்டிலக்கம்/Index no -.....

.....

பரீட்சை மேற்பார்வையாளர் கையொப்பம்

Signature of Invigilator

Important:

- Write your **index no** correctly in the appropriate place on the **page one** and **page three**.
- Answer all questions **on this paper itself**.
- Marks will be awarded follows: 02 marks each for questions part A 1 – 25 in part A. 10 marks each for questions in part B.

முக்கியமான விடயம்

- **முதலாம்** மற்றும் **மூன்றாம்** பக்கத்தில் உரிய இடத்தில் சரியாக உங்கள் **சுட்டிலக்கதினை** எழுதுக.
- எல்லா வினாக்களிற்கும் **இத்தாளிலேயே விடையளிக்குக.**
- புள்ளி வழங்கப்படும் முறை: பகுதி A 1 – 25 வரையான வினாக்களிற்கு 02 புள்ளியும், பகுதி B ஒவ்வொன்றிற்கும் 10 புள்ளியும் ஆகும்.

For marking examiner`s use only

வினாத்தாள் மதிப்பீட்டார் மட்டும்

வினா இலக்கம் Question number		புள்ளி Marks
A	1 - 25	
B	1	
	2	
	3	
	4	
	5	
மொத்தம் Total		

.....

Signature of Marking examiner

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தரம் 1 தொடக்கம்
A/L வரையான
எல்லா
தரத்தினருக்கும்
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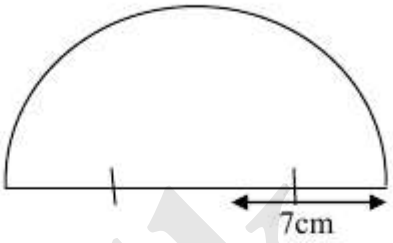
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ஒவ்வொரு நாளும் புதிது புதிதாக, பார்க்க மறவாதீர்கள்...

Part A

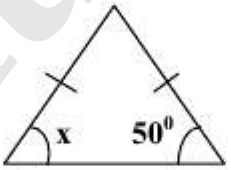
1. A person obtained a loan of Rs.60000 a simple interest rate of 15%. What is the interest payable for a year?

2. Find the perimeter of the sector given in the diagram. $\left(\pi = {}^{22}/_{7}\right)$



3. Factorize $a^2 - 7a + 10$

4. According to the given data, find x



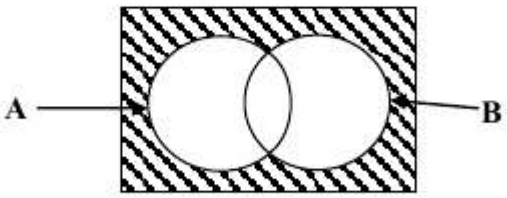
5. Find the median of the given data, 11, 15, 6, 7, 10, 5, 12

6. Compare the following using the signs <, > and =

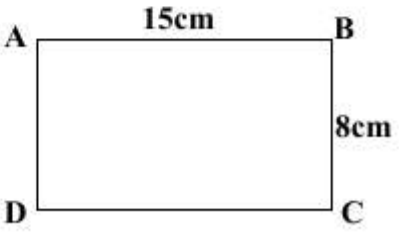
   $(-2)^5$ ……..$(+2)^5$

   $(-8)^{12}$……..$(+8)^{12}$

7. Write the shaded part of the Venn diagram in a set notation.



8. In the rectangle ABCD, AB=15cm and BC=8cm, Find the length of AC



9. Write $\log_3 27 = 3$ in index form.

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10. Simplify. $\frac{1}{x}+\frac{2}{3x}$

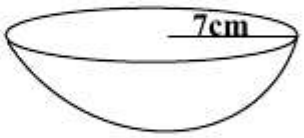
11. Find the value of $\sqrt{15}$ to the first approximation.

12. Write down the set of positive integers that satisfy the inequality $2x-5>11$

13. Solve $x^5-4=28$

14. Find the LCM 5ab, $10ab^2$, $30a^2b$

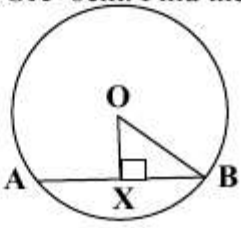
15. Find the total surface area of the hemi sphere solid with radius 7cm



16. Make "a" as the subject of the formula $\frac{a}{1-a}=r$

17. A work completed by 12 men in 10 days is completed by a bulldozer in 8 hours. How much work in man day is done by the bulldozer in one hour?

18. The perpendicular drawn the centre O to the chord AB is OX. If OB=10cm and OX=6cm. Find the chord length AB



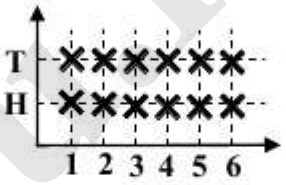
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19. If $2x + y = 6$

$2y + x = 9$, Find the value of $x + y$ without simplifying the equation.

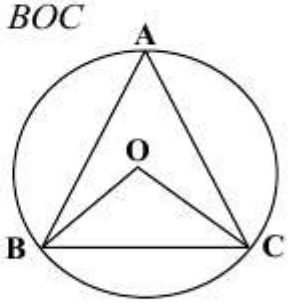
20. Indicate the 18^{th} term of the arithmetic progression 8, 16, 24,…….. as index form.

21. The following grid shows the sample space related to the experiment of tossing a coin and dice. What is the probability of getting the odd number and head?

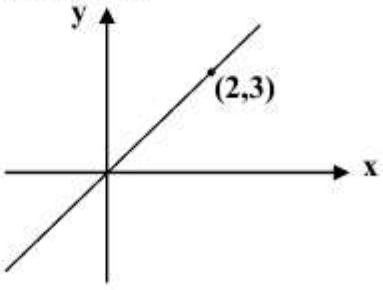


22. A vehicle starting from town A at 7.00 am, with uniform speed of 60kmh^{-1}. Find the distance travelled by the vehicle when the time is 9.00 am.

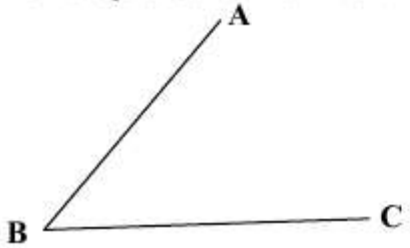
23. The vertices of the equilateral triangle are located on the circle of centre O. Find $B\hat{O}C$



24. The diagram given the graph of the function $y = mx$, Find the value m using the graph



25. Show the point x by constructing lines which is equidistance from the two line AB, BC and equidistance from the two point B, C



$2 \times 25 = 50 Marks$

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Part B

1. One person has allocated $\frac{7}{12}$ of his monthly income for food, $\frac{2}{5}$ of the rest for education, further $\frac{1}{3}$ of the rest for other purpose and save the rest.
   i. After spending for the food, find the remaining amount in fraction of the whole?

   ii. Find the fraction of monthly income which spends for education?

   iii. Find the fraction of monthly income he spend for other purpose from the whole?

   iv. If he saves Rs.10000, find his monthly income?

$3 + 3 + 2 + 2 = 10 Marks$

2. a) The annual estimated value of a house is Rs.50000.The urban council charges an annual rates of 12% for this property.
   i. What is the annual rate changed for the house?

   ii. What is the rate is paid for a quarter?

   iii. If the rates charged for a quarter for another house in the same urban council is Rs.600. what is the annual estimated of the house?

b. A tariff of 30% is charged for an imported television. The price of the television with the tariff is Rs.39000. What is the value of the television before imposing the tariff?

$2 + 2 + 2 + 4 = 10 Marks$

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3. There are five cards available in a box which are numbered 1-5, one card is randomly selected and observed, then again put inside the box. Further another card is randomly selected from the box.
   i. Represent the sample space of the about experiment in grid.



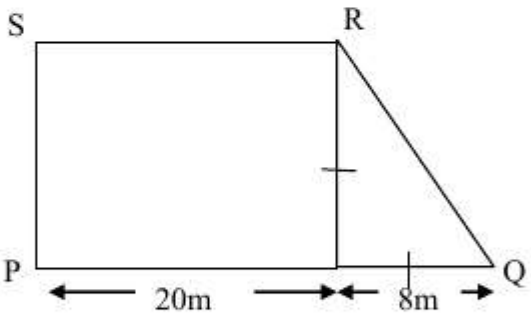
   ii. Find the probability of getting the card number 5 at least once?

   iii. Find the probability of getting the same numbered card in both instances?

   iv. Find the probability sum of the numbers getting both instances to be more than 6?

$4 + 2 + 2 + 2 = 10 Marks$

4. The trapezium shaped flower garden of Suren is shown in the diagram.
   i. Calculate the area of isosceles right angle triangle?



   ii. Find the total area of the flower garden?

   iii. Find the value of QR^2

   iv. What is the theorem used to calculate QR^2

   v. Suren makes half circular flower bed in outside, which has PS as a boundary and diameter. Sketch the made flower bed in the above diagram.

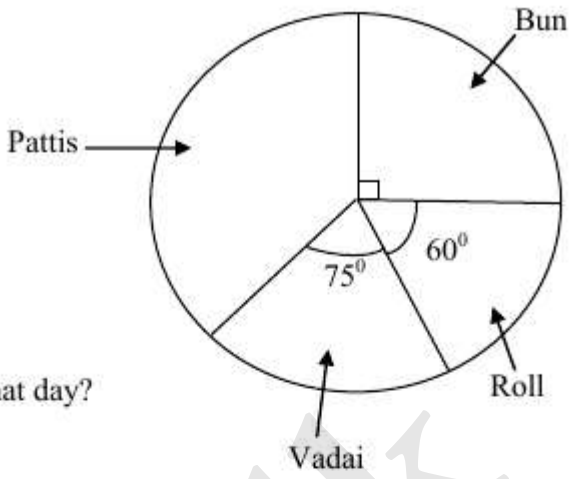
   vi. What is the extend of the half circular area in term at π

$2 + 2 + 2 + 1 + 2 + 1 = 10 Marks$

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5. The details of sold short eats on a certain day in a "Keerthika" restaurant are given in the pie chart.

i. What is the magnitude of angle of sector which denotes people who ate "pattis"?



❖ The number of people who ate "vadai" is 20

ii. Find the number of people who ate "roll"?

iii. Find the total number who came to the restaurant on that day?

❖ Four of the people who ate "vadai", ate "pattis" on next day. (The total number of consumers not change)

iv. Draw a pie chart to denote the consumed short eats in the restaurant next day.

v. In that, find the magnitude of the angle of sector which denotes "pattis"?

$2 + 2 + 2 + 2 + 2 = 10 Marks$

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First Term Exam – 2019
முதலாந்தவணைப்பரீட்சை- 2019

Grade -11 தரம் - 11	32 - Mathematics Paper – II 32 - கணிதம் வினாத்தாள் - II	Time – 3 Hour நேரம் - 3 மணித்தியாலம்

Part – II

- Answer **ten** questions **select five questions** from **part A** and **five questions** from **part B**
- Each question carries 10 marks.
- The volume of solid cylinder of radius r is $\pi r^2 h$. The volume of solid right circular cone of base radius r and height h is $\frac{1}{3}\pi r^2 h$.

Part – A

01. A complete table of values of x an y prepared to draw the graph of function $y = a - x^2$

x	-3	-2	-1	0	1	2	3
y	-6	-1	2	3	2	-1	-6

i. Find the value of "a" using the table

ii. Using the scale of 10 small divisions as one unit along the x-axis an 10 small divisions as one unit along the y-axis , draw the graph of above function

iii. Write down the interval values of x for which the value of y increases positively

iv. Write down the coordinates of the turning point $y = 5 - x^2$

v. Write down the equation of the graph whose minimum value is -3 and which intersects the x-axis at the same point as that of the graph $y = -x^2$

02. a) When import a motor car worth 2000US dollars 20% charged as income tax,

i. If the value of a US dollar is Rs.160, Find the value of the motor car in Sri Lankan rupees before income tax paid

ii. Find the income tax should be paid?

iii. Find the value of motor car after income tax paid?

iv. Find the selling price of the motor car if the motor car sold with 10% profit

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03.

i. Expand. $(x+2)^3$

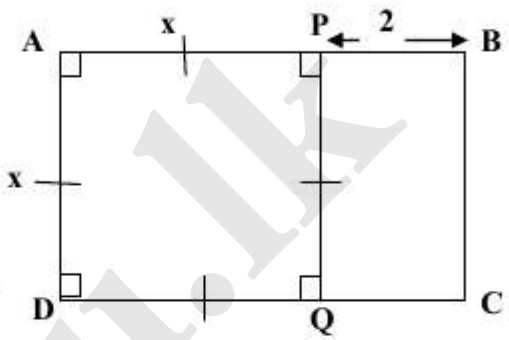
ii. Simplify. $x^{\frac{5}{3}} \div \sqrt[3]{x^2}$

iii. Simplify. $\frac{5ab}{x^2} \div \frac{a^2}{4xy}$

iv. Solve. $\frac{2}{a-2} + \frac{1}{2(a-2)} = 1$

04. Solve the following simultaneous equation. $2x - y = 6$

$x + 2y = 13$



b) Area of rectangle ABCD is $63cm^2$

i. Write the re of ABCD in terms of x

ii. Construct suitable quadratic equation and find the value of x by solving the equation

05. a)

Time (hours)	0	1	2	3	4	5	6	7
distance (Km)	0	5	10	15	20	20	20	25

i. draw the distance time graph for the above information

ii. Find the speed of car for first 4 hours

iii. How much time car take rest

iv. Find average speed of the car

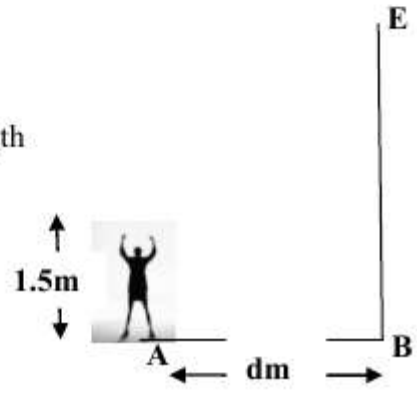
b) How much times taken to a motor pump which pumps 200**l** per minute to fill a tank of capacity $6m^3$?

06. BE is a vertical post on a level ground. An observer is standing at point A dm away from the post. The height of the observer is 1.5m.The observer at the point A observes the top of the post with an angle of elevation 40^0 and the foot of the post with angle of depression 20^0

i. Represent the information in sketch diagram

ii. Raw a scale diagram with scale 1cm represented by 50cm of actual length

iii. Using the diagram, Fin the value of d and height of the post in meters.



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Part – B

07. In a shop bars of soap are stacked on top of each other on rack in such a way that the bottom row has 24 bars, the row above that has 21 bars and row above that has 18 bars and so on

i. Find the number of bars in the 8^{th} row from the bottom?
ii. If the top bar has 3 bars of soap, find the total number of rows in a rack?
iii. Find the total number of soaps in the rack?
iv. If the bar of soap is 5cm height. Find the minimum height the rack should be to enable all the rows of soap to be place on it?

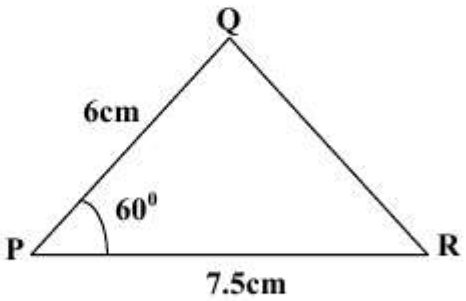
08. A distribution of marks obtained by 40 students at a test is given below

Class (Interval marks)	20-30	30-40	40-50	50-60	60-70	70-80
Frequency (No. of students)	3	6	11	8	7	5

i. What is the modal class of the above distribution?
ii. Find the mean mark obtained by a student?
iii. If all who obtained more than 40 marks considered successful. Fin the percentage of students being successful in the test?

09. Using only straight edge with scale cm/mm an pair of compasses an showing the construction lines clearly

i. Construct triangle PQS by considering the figure
ii. Construct the straight line go through S and parallel to PQ
iii. Construct a perpendicular to the parallel line you draw from Q. Name the base of the perpendicular as R.
iv. What is the special name of the quadrilateral PQRS
v. Measure and write down the length of RQ
vi. Find the area of the quadrilateral PQRS



10. There is a solid metallic cone of radius "a" and height 6 times of the radius

i. Find the height of the cone in terms of a
ii. Find the volume of the cone in terms of π and a

A cylinder of base radius 2a and height h is made by melting the above cone without wastage

iii. Show that the height of cylinder h = $\frac{a}{2}$.

iv. Find the value by using logramathic table. $\sqrt[3]{21} \times 5.2^2$

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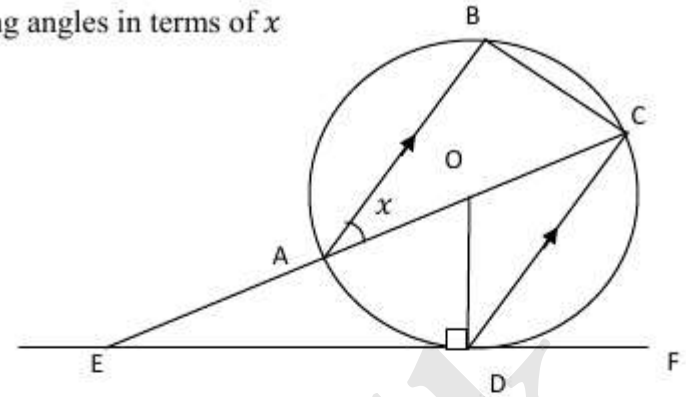
11. In the figure, O is the center of the circle AB and CD are parallel to each other

i. Find the magnitude of $A\hat{B}C$ Give reason for your answer

ii. If $B\hat{A}C = x$ Find the magnitude of the following angles in terms of x

1) $E\hat{C}D$
2) $E\hat{O}D$
3) $E\hat{D}C$

iii. Show that $B\hat{C}A = C\hat{D}F$

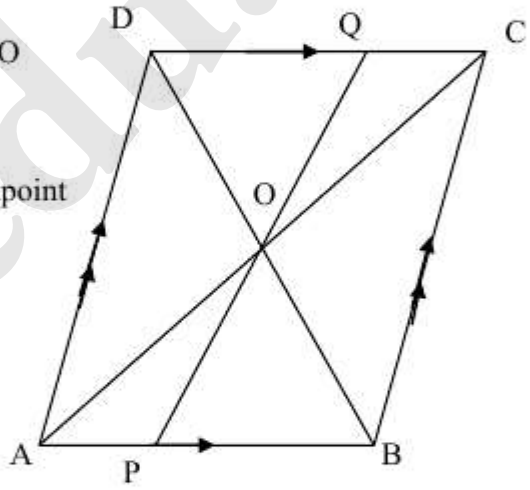


12. ABCD is a parallelogram, Diagonal AC and BD are intersect at O

i. Show that ΔDOQ ≡ ΔPOB

ii. P and Q are the points on AB and DC, show that midpoint of PQ is O

iii. Show that AP=QC



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