PROVINCIAL DEPARTMENT OF EDUCATI

NORTHERN PROVINCE

Second Term Examination– 2023

Grade - 11 | **Time :- Two Hours** | **Mathematics I**

Index Number :

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Certified

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Signature of Invigilator

IMPORTANT

- This question Paper consists **8** pages.
- Write your **index number** correctly in the appropriate places **on this page** and on **page three.**
- Answer the **all questions on paper itself.**
- Use the space provided under each question for working and writing the answer.
- Indicate the **relevant steps** and the **correct units** when answering the questions.
  Marks are awared as follows
  In Part IA
- 2 marks for each questions
  In Part IB
- 10 marks for each questions

For Marking Examiners' Use Only

Part	Question No.	Marks
A	1 – 25	
B	1	
	2	
	3	
	4	
	5	
Total		

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First Examiner

.....

Second Examiner

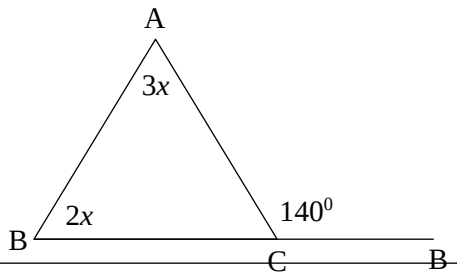
Part A

.Answer all the questions itself.

Take $\pi = \frac{22}{7}$

1. Find the cost of electric equipment with customs duty, when import equipment worth Rs.420000, 15% of its value has to be paid as customs duty?

2. Find the value of x, according to the data in the figure.



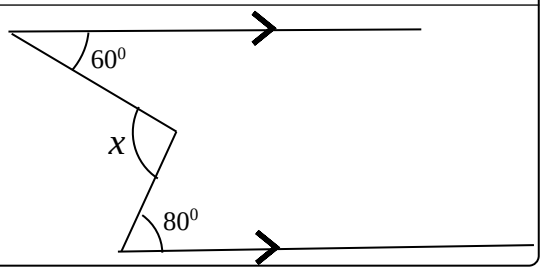
3. Simplify. $\frac{6}{x^2y} \times \frac{2x}{3}$

4. Find the time taken in minute, to fill half of a tank of a pipe which water flows at a rate of $50l\ /\ minute$ capacity of the tank is $700l$.

5. Factorize. $2x^2 - 5x - 7$

6. $4a^2b\ , 6ab\ , 8b^2$ Find the Least Common Multiple.

7. Find the value of x, according to the data in the figure.

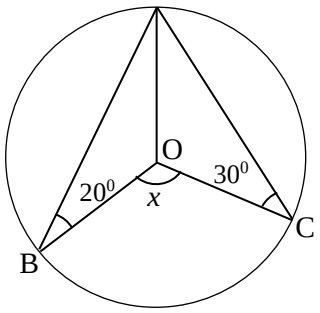


8. If $81 = 3^4$ What is the logarithm of 81 to the base 3?

9. In the figure, O is the center of the circle. If

$A\hat{B}O = 20^0, A\hat{C}O = 30^0$

Find the value of x

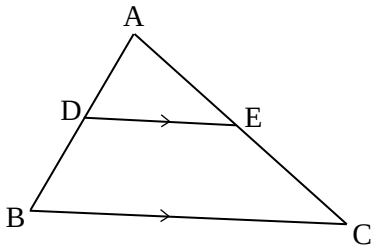


10. Solve. $(x + 3)(x - 7) = 0$

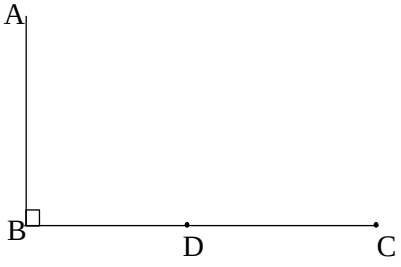
11. Solve and write the positive largest integral solutions of x in the inequality $6 - \frac{x}{2} \geq 1$

12. $If\ 284cm^2$ $t$otal surface area of the sphere is cut into 2 equal parts. Find the total surface area of a hemisphere?

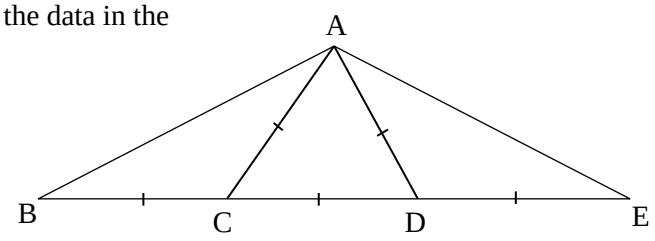
13. In the figure, If $AD = 5cm, DB = 2cm, EC = 6cm$, Find the length of AE?



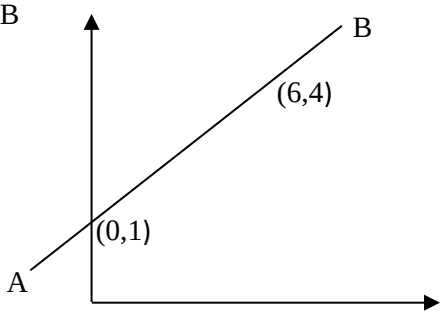
14. AB is a vertical building. The angle of depression of C from A is 47^0 and the angle of elevation of A from D is 52^0. Represent above information in the figure.



15. Find the value of $A\hat{E}B$, according to the data in the figure.



16. In the figure, find the gradient of the straight line AB

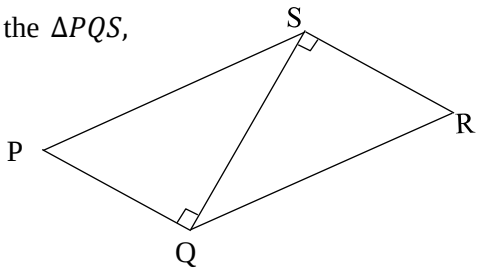


17. For each statement in the table, if it is correct mark a " " in front of it and if it is incorrect mark a "□"in front of it.

The diagonal of a rectangle bisects the vertex angle.	
The diagonals of a parallelogram bisect each other at right angles.	

18. 12 men will take 5 days to complete a certain task, find number of days are needed by 4 men complete the same task ?

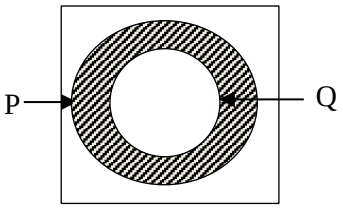
19. In the figure, If $S\hat{P}Q = S\hat{R}Q$ write the case of the ΔPQS, ΔQRS are congruent?



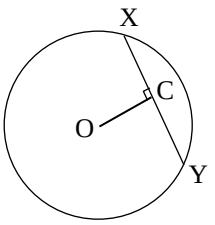
20. A, B are mutually exclusive event in a random experiment. If $P(A) = \frac{1}{3}, P(B) = \frac{1}{5}$ find

(i) $P(A \cap B)$ (ii) $P(A \cup B)$.

21. Write the shaded region in set notation.



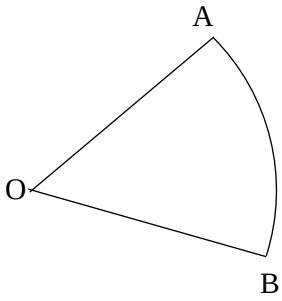
22. In the figure, O is the center of the circle. If Radius of the circle is $13cm$, $XYOC$. Length of the chord XY is$24cm$, Find the length of OC.



23. If $3x - y = 16, \quad 3y - x = 8$ Find the value of $x + y$ without solves.

24. First quartile is located at the 6^{th} position. Find the number of total frequencies of the data?

25. Complete the sketch indicating the location of the point X which is in AB and equal distance from the linesAO, BO.



Part B

. Answer all the questions itself.

(Take $\pi = \frac{22}{7}$)

1. A person cultivated half of his land Brinjal and cultivated chili on $\frac{3}{4}$ of the remaining. Later he cultivated onion in 5 Acres of land. Now paddy is cultivating the remaining land which is $\frac{1}{24}^{th}$ portion.

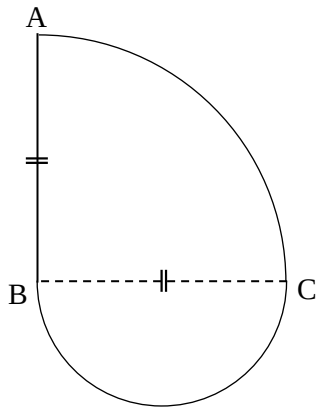
   (i)What is the fraction of the land cultivated chili of the whole land?

   (ii)What is the fraction of the total land cultivated brinjal and chili of the whole land?

   (iii)What is the fraction of the land cultivated onion of the whole land?

   (iv)Find the size of the land initially had in acres?

2. The figure shows a land consisting $14m$ radius of a quarter-circular part and a semi-circular part with the diameter as BC.



   (i) Find the quarter-circular arc length of AC?

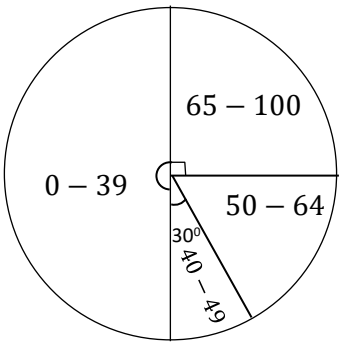
   (ii) Find the perimeter of the land?

   (iii) Find the area of the land?

(iv) If a rectangular land is newly annexed with its, area is equal to the area of the semi-circular part and AB is a boundary of it. Draw on the figure with measurement.

3. The pie chart illustrates the information about the details of of grade11 students mathematics marks.

(i) Find the angle at the center of the sector, which denotes the student who scored 50-64 range?



(ii) What is the percentage of the total number of students in the exam scored 40 or more than 40?

(iii) If the number of students scored 40-49 is 15 complete the given table.

class interval	number of students
0-39	……
40-49	15
50-64	……
65-100	……
Total	……

4. a. A person owns a house assessed annual value of a house is Rs.75000. He pays 8% of the assessed annual value of the house rates. he has rented it for the monthly rent is Rs.4000..

(i) How much has to be paid as rent per year?

(ii) Find the rates per year?

(iii) He spends Rs.4000 for the maintenance and paid rates from the rent. How much of the rent is left with at the end of the year?

b. How many years after taking a loan of Rs.24000 at an annual simple interest rate of 15%, does a person have to pay a total amount of Rs.34800 to settle the loan?

5. a. Probability of Kannan pass an exam is $\frac{3}{5}$ and probability of Kumar pass the same exam is $\frac{3}{4}$.

(i) Illustrate the probabilities of Kannan pass or fail mathematics on tree diagram.

(ii) Extend and illustrate the probabilities of kumar pass or fail the exam on given tree diagram.

(iii) Find the probabilities of the followings.

a. both students pass mathematics and science

b. only Kannan pass

c. atleast ones pass examination