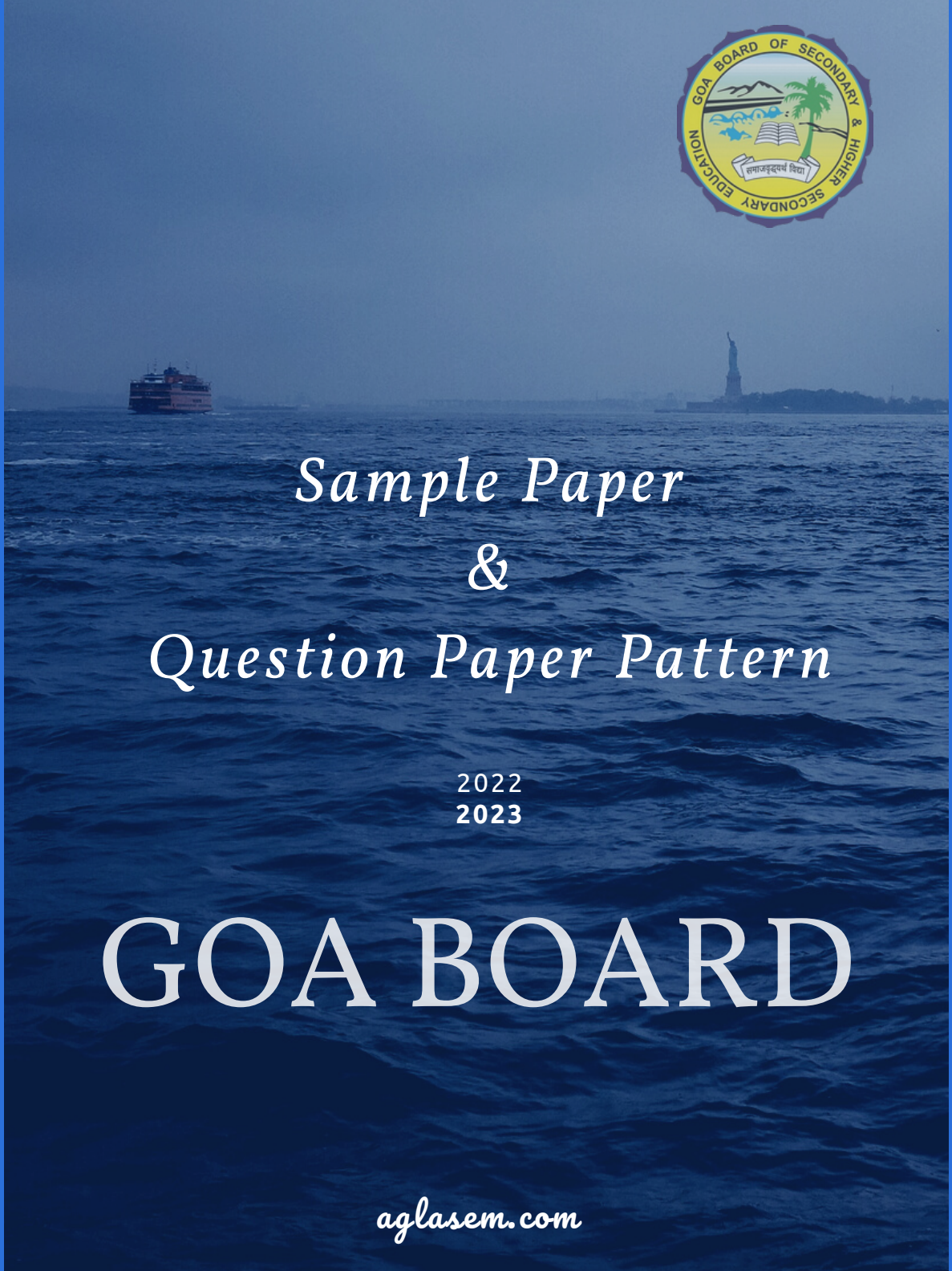


Sample Paper
&
Question Paper Pattern

2022
2023

GOA BOARD

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GOA BOARD OF SECONDARY AND HIGHER SECONDARY EDUCATION

PORTION AND MARKS DISTRIBUTION FOR STD IX (2022-2023)

SUBJECT: MATHEMATICS

First Quarterly Test

Ch.no.	Name of the chapter	Marks
1	Number System	6
5	Introduction to Euclid's Geometry	2
6	Lines and Angles	7
11	Constructions	5
	Total	**20**

First Term Exam

Ch.no.	Name of the chapter	Marks
2	Polynomials	10
3	Co-ordinate Geometry	3
7	Triangles	7
8	Quadrilaterals	5
1	Number System	5
5	Introduction to Euclid's Geometry	2
6	Lines and Angles	5
11	Constructions	3
	Total	**40**

Assignment : Financial Education (10marks)

The vision of Financial Education is to train our students to be financially responsible adults .It could enable them, at their level of need, to understand the role of money in their life, the need and use of savings, the advantages of using the formal financial sector and various options to convert their savings into investments, protection through insurance and a realistic recognition of the attributes of these options.

After creating awareness and educating students on access to financial services, Assignment based on guidelines given or any other innovative idea/activity could follow.

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Second Quarterly Test

Ch.no.	Name of the chapter	Marks
4	Linear Equations in two Variables	6
9	Areas of Parallelograms and Triangles	4
12	Heron's Formula	6
15	Probability	4
	Total	**20**

Second Term Exam

Ch.no.	Name of the chapter	Marks
10	Circles	6
13	Surface Areas and Volumes	10
14	Statistics	9
4	Linear Equations in two Variables	6
9	Areas of Parallelograms and Triangles	3
12	Heron's Formula	3
15	Probability	3
	Total	**40**

Project(10marks): Can be based on any one of the following chapters

Ch.no.	Name of the chapter
12	Heron's formula
13	Surface Areas and Volumes
14	Statistics
15	Probability

Y.R.A(20marks) -To include marks for

class response(5+5)marks, **notebooks**(5+5)marks for both the terms.

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Assignment : Financial Education (10marks)

Guidelines taken from Circular No.44 dated 27/09/2016

IX

1. Visit your nearest vegetable market and obtain changes in the price level of the following items and find out the percentage of inflation or deflation in the market between first Monday and third Monday.

Sr. no.	Item	Price per kilogram							
		1st Monday	1st Thursday	2nd Monday	2nd Thursday	3rd Monday	3rd Thursday	4th Monday	4th Thursday
1	Potatoes								
2	Tomatoes								
3	Onions								
4	Garlic								
5	Ginger								

2. Visit at least 3 Banks/post office in your locality and find out the following banking details mentioned in the table below:

Name of Bank/Post Office (PIN Code)	Types of accounts offered	Minimum Balance to be maintained	Interest Rate on Deposits

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3. Visit any bank and note the eligibility criteria and documents required for Education loans.

4. Visit a bank and note the details of opening and operating an account under Pradhan Mantri Jan Dhan Yojana (PMJDY) and the benefits associated with the account.

5. Write down tips for safe online shopping using a credit / debit card.

6. Make a list of security features of a credit and a debit card.

7. Survey 10 people from your family/friends/neighbors and check for the availability of the documents mentioned in the table below. Please tick (√) on the documents which are available.

Sl No.	Name of Person	Age (Years)	Documents		
			PAN Card	Aadhaar Card	Ration Card
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
Total					

Explain them the importance of PAN Card, Aadhaar Card and Ration Card.

8. How to apply for a PAN card? Write down the steps and visit the websites www.incometaxindia.gov.in/Pages/tax services/apply-for-pan.aspx and https://www.tin-nsdl.com/pan/pan-index.php

9. How to apply for an Aadhaar card? Write down the steps.

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10. Suppose you are given a pocket money of Rs. 1000 per month. Prepare a budget taking into consideration the following spending:

Expenses	Quantity	Minimum Price of the Product	Amount
Chocolates/sweets			
Crayons/Colours			
Clothes			
Games			
Food			
Stationary (pen,pencils,books, covers etc.)			
Others: Please mention _____			
Total Expense			
Total Savings			
Total			1000

Additional suggestions:

Prepare a portfolio on types of accounts/ loans offered by a Bank, filling up forms for opening a savings bank account/fixed deposit/ recurring deposit, filling up a withdrawal slip/deposit slip/cheque , calculation of interest on savings bank account /fixed deposits/ recurring deposits/Housing loans, preparing a Budget etc.

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GOA BOARD OF SECONDARY AND HIGHER SECONDARY EDUCATION

Model paper

First Term Examination (2022-23) Max. Marks: 40

STD : IX SUBJECT: Mathematics Time : $1\frac{1}{2}$ Hr.

Q 1 A) Select and write the most correct alternative from those given below: (1)

The zero of the polynomial 7x- 2 is

(a) $\frac{-7}{2}$ (b) $\frac{-2}{7}$ (c) $\frac{2}{7}$ (d) $\frac{7}{2}$

B) Find the value of k if (x+2) is a factor of $x^3 - 2x^2 + 3x + 2k$ (2)

C)1) Factorise **ANY ONE** of the following by splitting the middle term: ($1\frac{1}{2}$)

i) $3x^2 + 2x - 8$

ii) $5x^2 - 14x + 8$

2) Evaluate **ANY ONE** of the following using a suitable identity: ($1\frac{1}{2}$)

i) $(101)^3$

ii) 108 X 92

D) 1) Expand **ANY ONE** of the following using a suitable identity: (2)

i) $(2x-5)^3$

ii) $(2x-y+3z)^2$

2) Factorise **ANY ONE** of the following using a suitable identity: (2)

i) $27x^3-343y^3$

ii) $8x^3+y^3+z^3-6xyz$

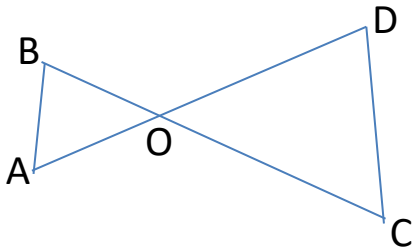
Q 2 A) Select and write the most correct alternative from those given below: (1)

If $\Delta AMN \cong \Delta XYZ$, $\angle M = \angle Y = 90^o$, AM=3cm and YZ =4cm,then the length of AN is

(a) 3cm. (b) 4cm. (c) 5cm. (d) 7cm.

B) In the adjoining figure, $\angle B < \angle A$ and $\angle C < \angle D$ (2)

Prove that: AD< BC



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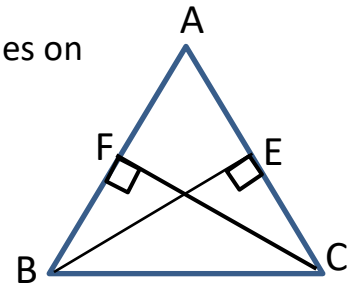
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C)Plot the following points in a Cartesian plane: (3)
P(-3,-2) ; Q(6,0) ; R(5,-3) ; S(0,-4) ;T(-4,8);A(5,4)

D) Attempt the following:

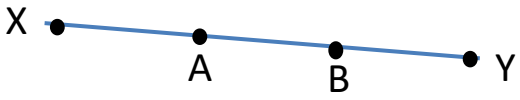
1)State with reason whether it is possible to draw ΔDEF with the lengths of it's sides as DE=5.2cm, EF=2.4cm and DF=2.8cm. (1)

2)In the adjoining figure, BE and CF are two equal altitudes on Side AC and side AB of ΔABC respectively. (3)
Prove that: ΔABC is Isosceles



Q 3 A) Select and write the correct alternative from those given below: (1)
Two lines PQ and RS intersect each other at O such that ∠POR=65°.Therefore the measure of ∠POS is
(a) 25° (b) 65° (c) 115° (d) 295°

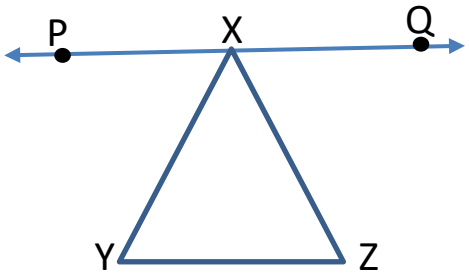
B) In the adjoining figure, points A and B are on line segment XY such that XB=YA. (2)
Prove that: XA = YB



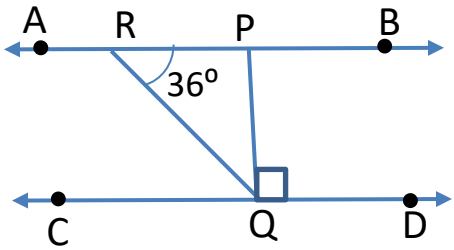
C) Construct ΔPQR in which $\angle Q=45^0$, $\angle R=60^0$ and $PQ+QR+PR=13.7cm$. (3)

D)Attempt the following:

1) In the adjoining figure, XYZ is a triangle. Line PQ is drawn passing through vertex X and parallel to side YZ. (2)
Prove that: ∠YXZ+∠XYZ+∠XZY =180°



2) In the given figure, AB||CD, PQ ⊥ CD and ∠PRQ=36° (2)
find
1)∠RQC
2)∠PQR



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Q 4 A) Select and write the correct appropriate alternative from those given below: (1)

If the diagonals of a quadrilateral are equal and bisect each other at right angles then it is a

(a) parallelogram (b) rectangle (c) rhombus (d) square

B) Express $1.\overline{27}$ in the form of $\frac{p}{q}$ where p and q are integers and q ≠0 (2)

C)Attempt the following:

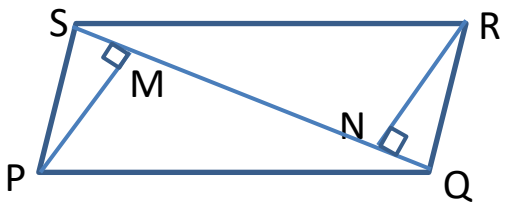
1) Write the decimal form of $4\frac{1}{4}$ (1)

2) Rationalise the denominator of: $\frac{4}{(1+\sqrt{3})}$ (2)

D) Attempt the following:

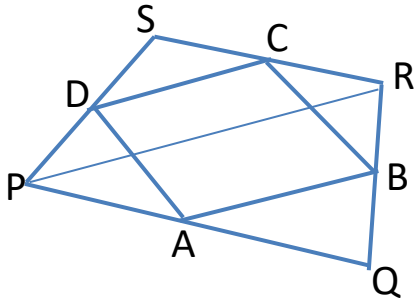
1) In the adjoining figure, □PQRS is a parallelogram.PM and RN are perpendiculars from vertices P and R on diagonal QS at M and N respectively (2)

Show that: ΔPMS ≅ ΔRNQ



2)PQRS is a quadrilateral in which A,B,C and D are the midpoints of sides PQ,QR,RS and PS respectively

Prove that: □ABCD is a parallelogram. (2)



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GOA BOARD OF SECONDARY AND HIGHER SECONDARY EDUCATION

Model Paper

Second Term Examination : (2022 – 23)

Std: IX **Subject: Mathematics** **Max. Mks: 40** **Time: 1½ hrs**

Q.1.A) Select and write the correct alternative from those given below : (1)

The class interval with class mark 25 and class size 10 is :

(a) 15 – 25 (b) 15 – 30 (c) 20 – 25 (d) 20 – 30

B) Attempt the following. (2)

1) The heights (in cm) of 10 students of a class are as follows:

155, 160, 145, 149, 151, 147, 153, 144, 148, 145

Find the median height of this data.

2) A die is thrown once. Find the probability of getting a prime number on its top face.

C) The table below shows the marks obtained by a certain number of students in a math test. Complete the table and find the mean mark obtained. (3)

Marks (xi)	No. of students (fi)	fi . xi
5	07	……..
10	11	……..
15	13	……..
20	09	……..
25	07	……..
30	03	……..
	Σ fi = ……..	Σ fi . xi = ……..

D) Draw a histogram and hence a frequency polygon for the following frequency distribution. (4)

Daily earnings (in Rs) : (C.I)	700 – 750	750 – 800	800 – 850	850 – 900	900 – 950
No. of workers (fi)	6	9	3	7	5

Q.2.A) Select and write the correct alternative from those given below : (1)

The total surface area of a solid hemisphere of radius ' r ' is :

(a) $2\pi r^2$ (b) $3\pi r^2$ (c) $4\pi r^2$ (d) $5\pi r^2$

B) Attempt the following. (2)

1) Find the curved surface area of a right circular cone of slant height 10 cm and base radius 7 cm. (Take $\pi = 22/7$)

2) The radius of a sphere is 3 cm. Find its volume. (Do not substitute for π)

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C) A patient in a hospital is given soup daily in a cylindrical bowl of diameter 7 cm. (3)
If the bowl is filled to a height of 4 cm, then find the quantity of soup in litres that the hospital has to prepare daily to serve 100 patients. (Take $\pi = 22/7$)

D) Attempt the following.

1) The length, breadth and height of a room is 5m, 4m and 3m respectively. (2)
Find the cost of white washing its four walls at the rate of ₹ 25 per m^2.

2) The diameter of a right circular cone is 7 cm. If its volume is 154 cm^3, find the height of the cone. (2)
(Take $\pi = 22/7$)

Q.3.A) Select and write the correct alternative from those given below. (1)
The equation $x = 7$, in two variables, can be written as :

a) $x + 0y = 7$ (b) $0x + y = 7$ (c) $7x + 0y = 7$ (d) $x + y = 7$

B) Attempt the following. (2)

1) Find the value of '**k**' if $x = 2$ and $y = -1$ is a solution of the equation $5x + ky = 13$.

2) 3 kg rice and 2 kg sugar together cost ₹ 190. Represent this statement in the form of a linear equation if the cost of 1 kg rice and 1 kg sugar is ₹ x and ₹ y respectively.

C) Draw the graph of the linear equation $y = 3x - 5$ (3)
Rewrite and complete the following table.
(Plot at least 3 points for this line on a graph paper)

$y = 3x - 5$

x			
y			
(x , y)			

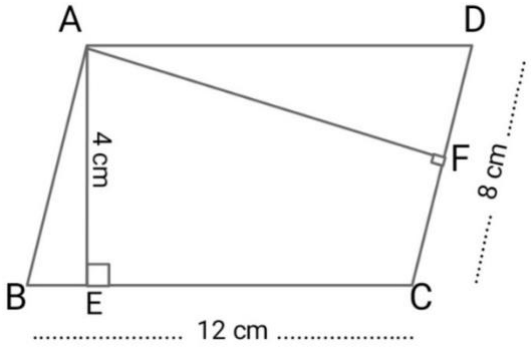
D) Attempt the following.

1. Three coins are tossed simultaneously 100 times. The following outcomes are recorded. (2)

Outcome	3 tails	2 tails	1 tail	No tail
Frequency	23	27	26	24

Find the probability of getting:
i) more than one tail.
ii) all heads

2. □ABCD is a parallelogram, AE ⊥ BC and AF ⊥ CD as shown in the figure. (2)
If BC = 12 cm, CD = 8 cm and AE = 4 cm, then find:
i) area of parallelogram ABCD
ii) length of AF



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Q.4.A) Select and write the correct alternative from those given below : (1)

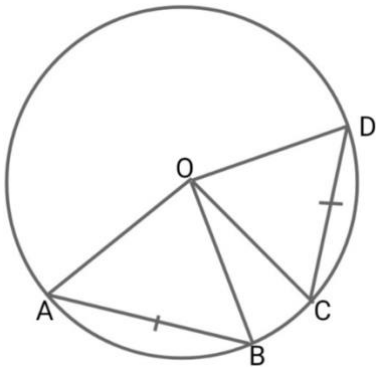
A triangle and a parallelogram are on the same base and between the same parallels. If the area of the parallelogram is 64 cm^2 then the area of the triangle is:

a) 128 cm^2 b) 64 cm^2 c) 32 cm^2 d) 8 cm^2

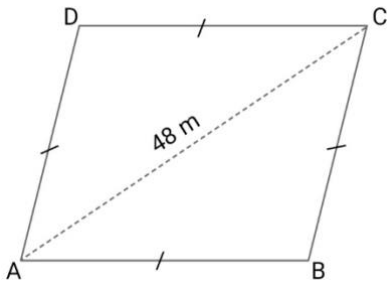
B) With reference to the adjoining figure and given conditions write the proof of the theorem given below: (2)

Given: AB and CD are congruent chords of a Circle with centre O.

Prove that: $\angle AOB = \angle COD$



C) A rhombus shaped field has green grass for 18 cows to graze. (3)
If the perimeter of the rhombus is 120 m and its longer diagonal is 48 m, then find the area of the grass field each cow will get to graze.

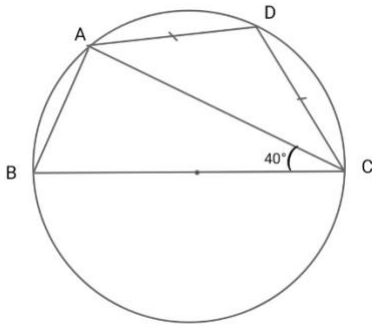


D) Attempt the following.

1) □ABCD is a cyclic quadrilateral with BC as diameter and AD = CD . If $\angle ACB = 40°$, then find the measure of: (2)

i) $\angle ABC$

ii) $\angle ACD$

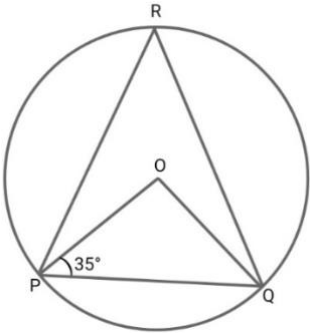


2) In the given figure ΔPQR is inscribed in a circle with centre O. (2)

If $\angle OPQ = 35°$, then find :

i) $\angle PRQ$

ii) m(arc PRQ)



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