



## MATHS

### BOOKS - SELINA MATHS (ENGLISH)

#### REVISION PAPER -4

#### Section A

1. If the sum of  $p$  terms of an A.P. is equal to sum of its  $q$  terms. Prove that the sum of  $(p+q)$  terms of it is equal to zero.

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2. Divide Rs 1,260 among A, B and C so that the ratio between the shares of A and B is 2:3 and the ratio between the shares of B and C is 4:5.

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3. Mohan had some shares with face-value Rs 100 paying 8% dividend . He sold them for Rs 130 each and invested the proceed in Rs 50 shares of some other company at Rs 75 and paying 12 % dividend. If by doing so his annual income is increased by Rs 360, find the number of shares Mohan had.



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4. For the following intra-state supply of goods/services, find the amount of bill, if the rate of GST is 12 %

No. of items	25	40	30	50
MRP (in ₹) of each Item	60	75	80	50
Discount %	30	40	20	50



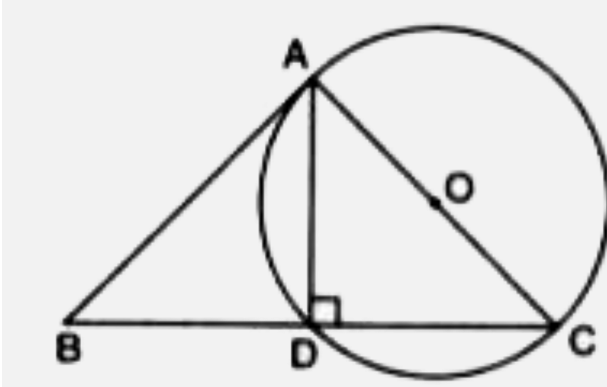
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5. Find the median of prime number between 29 and 60.



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6. The angle A of the triangle ABC is a right angle. The circle on AC as diameter cuts BC at point D. If  $BD = 9\text{cm}$  and  $DC = 7\text{cm}$ , calculate the length of AB.



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7. Govinda opened a R.D. account in a bank for 2 years 4 months. If the rate of interest is 8% per year and the bank pays him Rs 7,369.60 on maturity, find how much per month did Govinda deposit ?

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8.

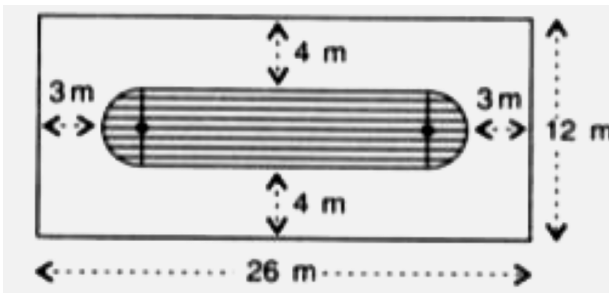
Given

$$P = \{x : 9 < 2x - 1 \leq 13, x \in R\} \text{ and } Q = \{x : -5 \leq 3 + 4x < 15, x \in I\}$$

Where  $R = \{\text{Real Numbers}\}$  and  $I = \{\text{Integers}\}$ . Represent  $P$  and  $Q$  on number lines. Write down the elements of  $P \cap Q$


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9. Use the information given in the figure to find area of the unshaded region. Give your answer in terms of  $\pi$ .


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10. Two equal cones are touching each other completely at the base circle. Given that the distance between the two vertices is 16 cm and the

diameter of the base circle is 12 cm, find the total surface area of this solid.

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11. P is solution set of :  $7x - 2 > 4x + 1$  and Q is the solution set of :  $9x - 45 \geq 5(x - 5)$ : where  $x \in R$ .

Represent (i) P - Q and  $P \cap Q$  on different number lines.

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12. Spherical marbles of diameter 1-4 cm are dropped into a beaker containing some water and are fully submerged. The diameter of the beaker is 7 cm. Find how many marbles have been dropped in it if the water rises by 5.6 cm ?

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13. The horizontal distance between two tower is 150 m. The angle of depression of the top of one tower as observed from the top of other tower, which is 120 m in hight, is  $30^\circ$ . Find the height of the first tower.

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14. Prove that  
: $(\sin \theta + \sec \theta)^2 + (\cos \theta + \csc \theta)^2 = (1 + \sec \theta \csc \theta)^2$ .

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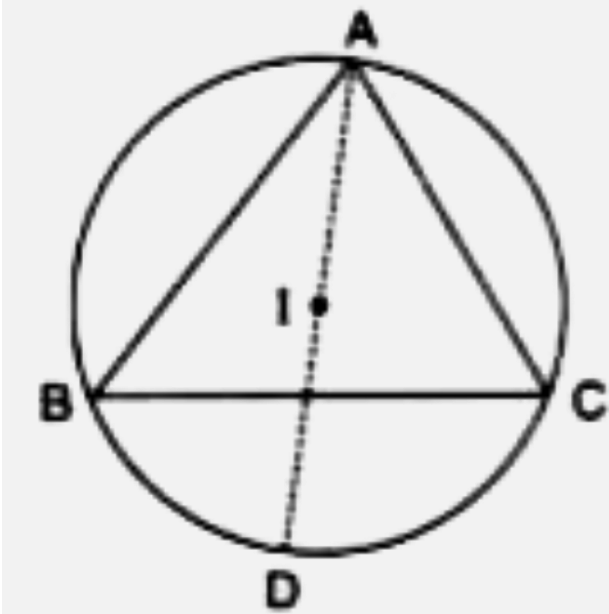
15. Find the range of vaues of x, which satisfy the inequality :

$$-\frac{1}{5} \leq \frac{3x}{10} + 1 < \frac{2}{5}, x \in R.$$

Graph the solution set on the number line.

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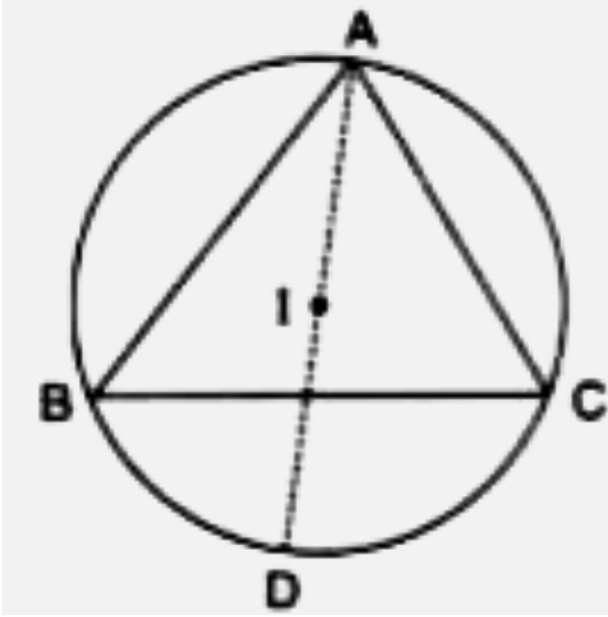
16. In the given  $I$  is the incentre of triangle  $ABC$ .  $AI$  produced meets the circumcircle of triangle  $ABC$  at point  $D$ . Given that angle  $ABC = 48^\circ$  and angle  $ACB = 72^\circ$ , calculate:



$\angle BCD$

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17. In the given  $I$  is the incentre of triangle  $ABC$ .  $AI$  produced meets the circumcircle of triangle  $ABC$  at point  $D$ . Given that angle  $ABC = 48^\circ$  and angle  $ACB = 72^\circ$ , calculate:

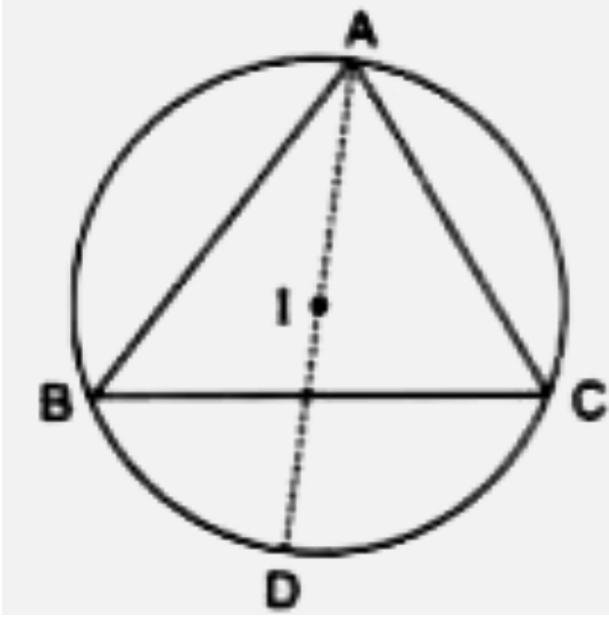


$\angle CBD$

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**18.** In the given  $I$  is the incentre of triangle  $ABC$ .  $AI$  produced meets the circumcircle of triangle  $ABC$  at point  $D$ . Given that angle  $ABC = 48^\circ$  and angle  $ACB = 72^\circ$ , calculate:





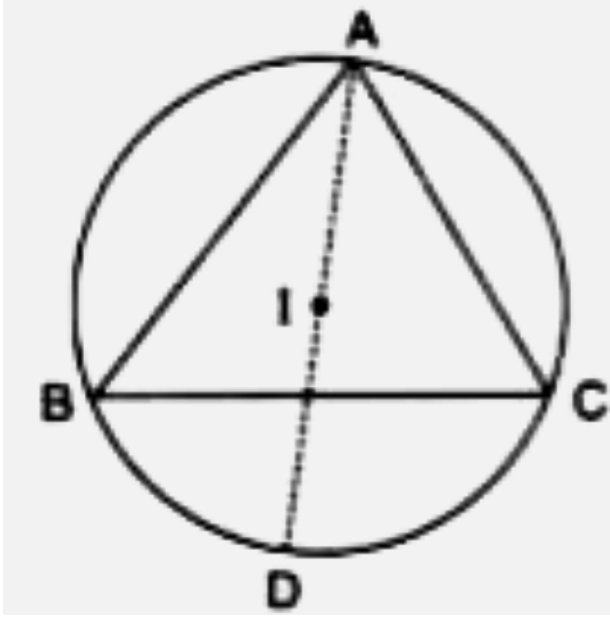
$\angle DCI$



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## Section B

1. In the given I is the incentre of triangle ABC. AI produced meets the circumcircle of triangle ABC at point D. Given that angle  $ABC = 48^\circ$  and angle  $ACB = 72^\circ$ , calculate:

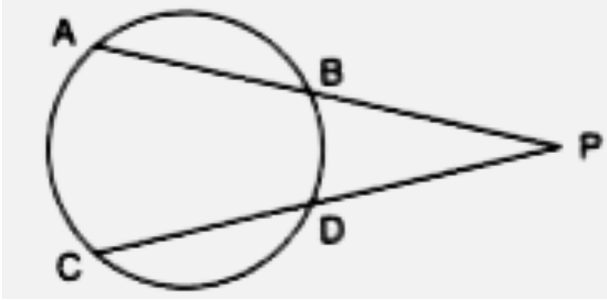


$\angle BIC$



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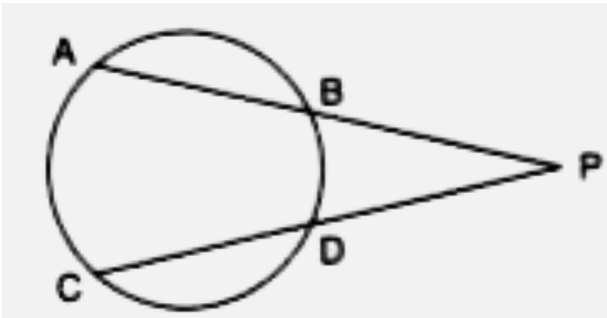
2. The equal chords AB and CD of circle with centre O, when produced, meet at P outside the circle. Prove that :



$$PB = PD$$

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3. The equal chords AB and CD of circle with centre O, when produced, meet at P outside the circle. Prove that :



$$PA = PC.$$

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4. A man wants to buy 124 shares available at rupees 66 (par value = rupees 50 )

(i) How much should he invest?

(ii) if the dividend is 7.5 % what will be his annual income?

(iii) If he wants to increase income by rupees 600. how many extra shares should he buy ?

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5. A man wants to buy 124 shares available at rupees 66 (par value = rupees 50 )

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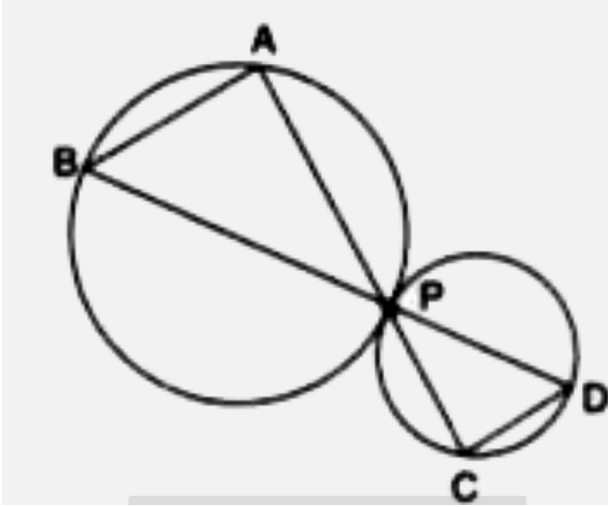
(ii) if the dividend is 7.5 % what will be his annual income?

(iii) If he wants to increase income by rupees 600. how many extra shares should he buy ?



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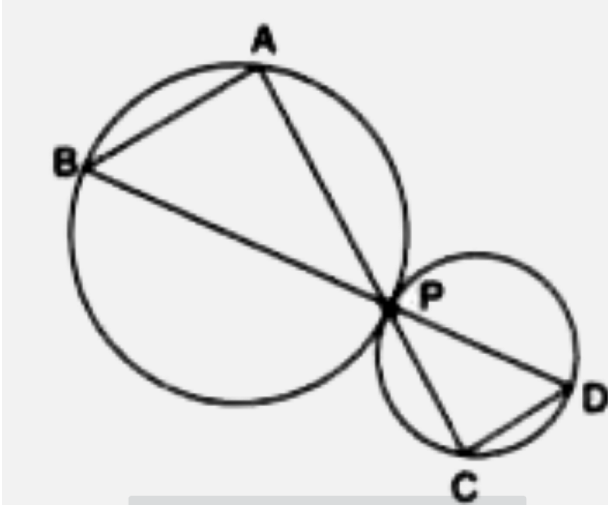
7. Two circles touch each other externally at point P. APC and BPD are straight lines. Show that :



$\triangle PAB$  and  $\triangle PCD$  are similar

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8. Two circles touch each other externally at point P. APC and BPD are straight lines. Show that :



AP is parallel to CD.

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9. 21 glass spheres, each of radius 2cm are packed in a cuboidal box of internal dimensions  $16\text{cm} \times 8\text{cm} \times 8\text{cm}$  and, then the box is filled with water. Find the volume of water filled in the box.

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10. The point P divides the joining of  $(2, 1)$  and  $(-3, 6)$  in the ratio 2:3. Does P lie on the line  $x - 5y + 15 = 0$  ?



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11. Find the common ratio of an infinite GP. Whose each term is ten times the sum of all its succeeding terms.



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12. A dividend of 9% was declared on 100rs share selling at a certain price. If the rate of return is 7.5% calculate

(i) the market value of the share

(ii) the amount to be invested to obtain an annual dividend of 630rs



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13. A dividend of 9% was declared on Rs 100 shares selling at a certain price. If the rate of return is 7.5%, calculate:

the amount to be invested to obtain an annual dividend of Rs 1,260.



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14. A circle, with centre  $O$ , circumscribes a pentagon  $ABCDE$ . IF  $AB - BC = CD$  and  $\angle BCD = 126^\circ$ , find:

$\angle AEB$



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15. A circle, with centre  $O$ , circumscribes a pentagon  $ABCDE$ . IF  $AB - BC = CD$  and  $\angle BCD = 126^\circ$ , find:

$\angle AED$



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16. A circle, with centre  $O$ , circumscribes a pentagon  $ABCDE$ . IF  $AB - BC = CD$  and  $\angle BCD = 126^\circ$ , find:

$\angle AOC$



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17. The hotel bill for a number of persons for overnight stay is Rs 4,800. If there were four more persons, the bill each person had to pay would have reduced by Rs 200. Find the number of persons staying overnight.

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18. Show that any four vertices of a regular pentagon form a cyclic quadrilateral.

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19. If  $\operatorname{cosec} \theta - \sin \theta = m$  and  $\sec \theta - \cos \theta = n$ , then show that  $(m^2 n)^{2/3} + (mn^2)^{2/3} = 1$ .

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20. about to only mathematics



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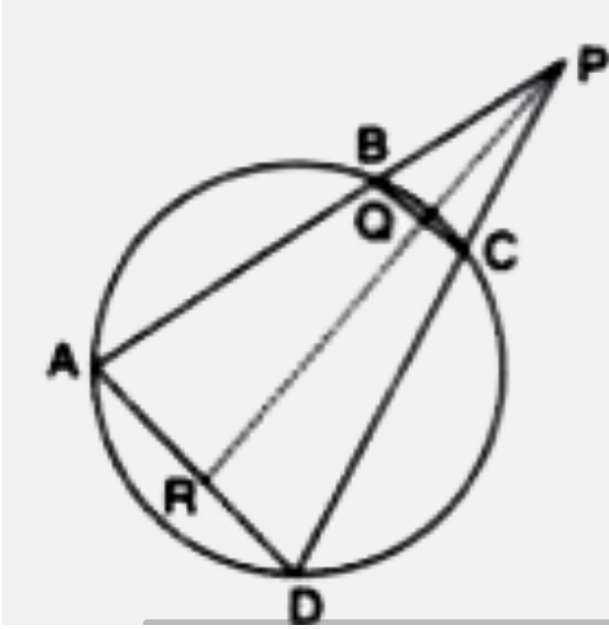
21. Find the mean of the following data :

Marks obtained :	Less than 0	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50
No. of students :	0	7	19	32	42	50



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22. In the given PR is the bisector of  $\angle BPC$ . It meets BC and AD at points Q and R respectively. Prove that:

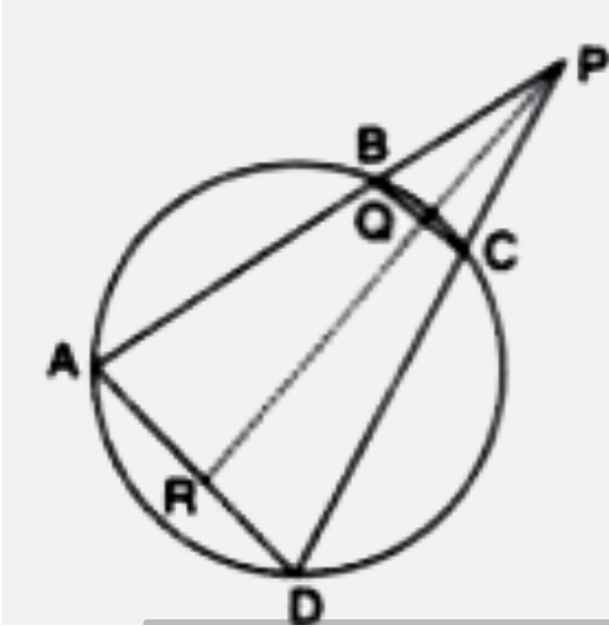


$$\angle ARQ = \angle BQR$$



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**23.** In the given PR is the bisector of  $\angle BPC$ . It meets BC and AD at points Q and R respectively. Prove that:



angle ARQ + angle RQC =  $180^\circ$

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24. Construct a triangle PQR, in which

$PR = 6\text{cm}$  and  $PQ = QR = 6.8\text{cm}$ .

Mark S the mid-point of PQ.

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25. Construct a triangle PQR, in which  $PR = 6\text{cm}$  and  $PQ = QR = 6.8\text{cm}$ .

Construct the circle which touches QR at R and passes through S.



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26. Solve using formula :  $6x^2 - 35x + 50 = 0$



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