Vrithangal

Que 1: A, B, C are points in the circle with centre O. If ∠OCA = x then

Find ∠OAC

Prove that ∠OCA + ∠ABC = 90°.*Marks :(4)*
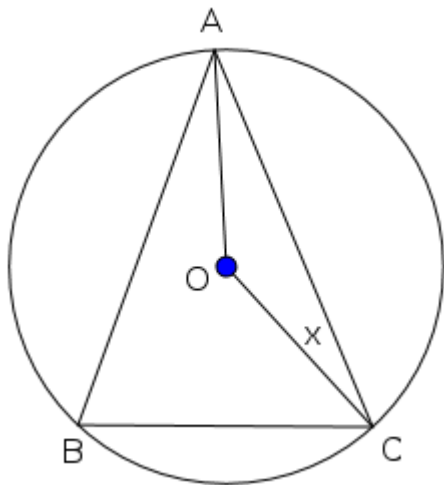
Ans: ∠OCA = x, ∠OAC = x

∠AOC = 180 − 2x

∠B = 90 − x

∠OCA + ∠ABC = 90 − x + x = 90^0

Que 2: In the circle with centre O, ∠CAD= 40° then

Find ∠B, and ∠ACD?   *Marks :(2)*
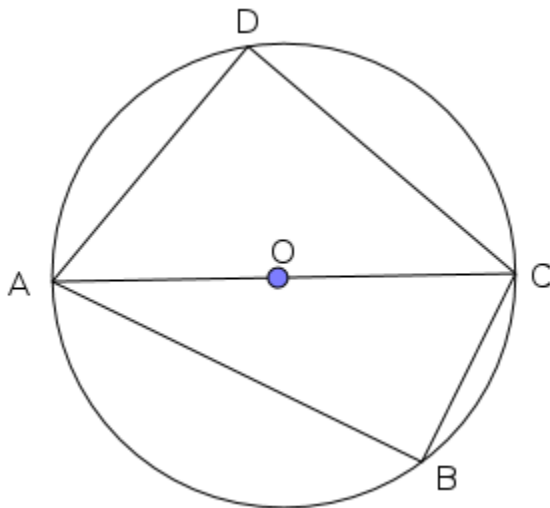
Ans: ∠B = ∠D= 90°

∠ACD = 50°

Que 3: In the figure O is the centre of the circle. And ∠ADB=120°, ∠OAC=30°, Then

Find ∠ACB

Find ∠OAB

Justify that ABC is an equilateral Triangle.   *Marks :(4)*
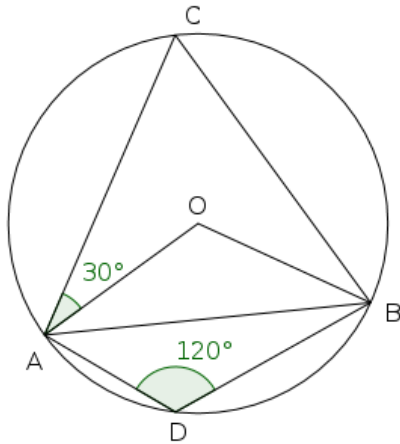
Ans: ∠C = 180 − 120 = 60°

∠AOB = 120° ∠OAB = 30°

∠A=60°, ∠B = 60° ABC is equilateral

Que 4: In the figure ∠C= 40°, ∠OBC=15°

Find ∠AOB

Find ∠OAB

Find all angles of triangle ABC *Marks :(4)*

Ans:
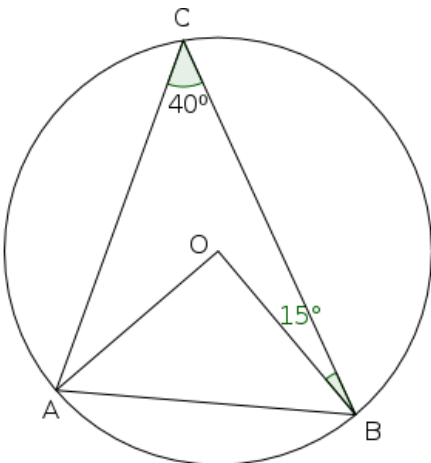
a) $\angle AOB = 80^0$

b) $\angle OAB = \dfrac{(180 - 80)}{2} = 50^0$

c) $\angle B = 65°, \angle A = 75°$

Que 5: Draw a rectangle of length 6cm and breadth 4cm

Construct a square having same area of the rectangle. *Marks :(5)*

Ans: For Drawing the rectangle

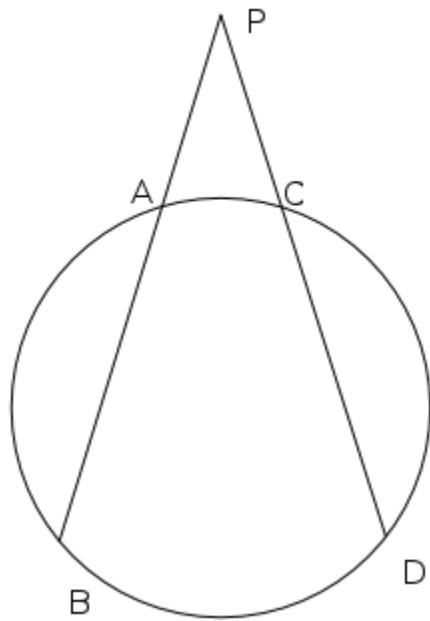For extending length by adding the breadth with length

For drawing the perpendicular bisector of this line

Drawing the Square

Que 6: In the figure PA=PC, Which are the triangles formed when AC and BD are joined ?

Prove that ABDC is an isosceles trapezium? *Marks :(5)*

Ans: a) ΔPAC, ΔPBD
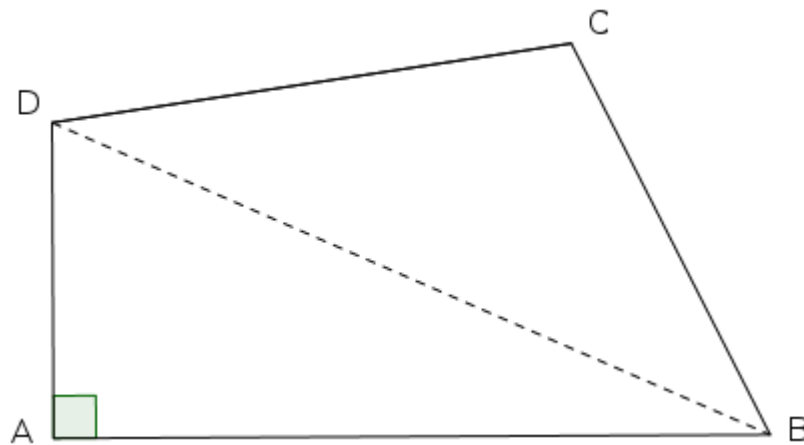
b) PB = PD (PA = PC, PA x PB = PC x PD)

AB = CD

(AC and BD are parallel ($\angle$PAC = $\angle$ PBD)

ABDC is an isosceles trapezium

Que 7: In the figure if we draw a circle with diagonal BD of the quadrilateral ABCD as diameter, where will be the positions of the vertices A and C ($\angle$ C = 100^0)?
Marks :(2)

**Ans:** A is on the circle and C is in the circle

Que 8: Draw a circle with radius 3 cm. Construct a triangle with vertices on the circle and having angles 50°, 60°, 70° *Marks :(4)*

Ans: For Drawing the circle

For drawing angles 100°, 120°, 140°at the centre

For drawing the triangle

Que 9: In the figure the chords MA and NB extended and met at P. MA = 5cm, PA = 7cm and PB = 6cm.Calculate the length of NB? *Marks :(4)*
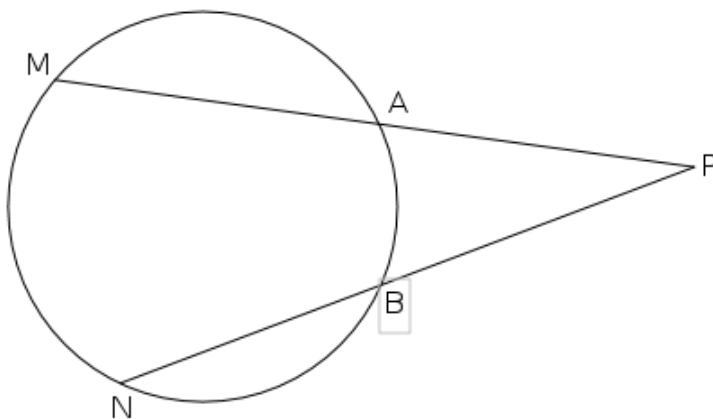
Ans: MP = 12 cm

PA x PM = PB x PN

PN = 14cm

NB = 8 cm

Que 10: From the figure

a) What is the measure of ∠ADC ?

b) Find the radius of the circle. *Marks :(3)*
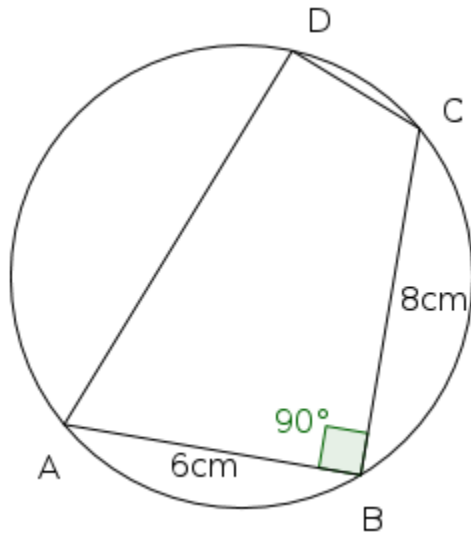
Ans: a) ∠ADC = 90°

b) diameter = 10 cm

radius = 5cm

Que 11: In the figure △ABC is equilateral. BD = CD, AC = 12cm and CD = 5cm.Then

Find the measure of ∠ACB

Find the measure of ∠D

Find the measure of ∠BCD

Calculate the diameter of the circle *Marks :(5)*
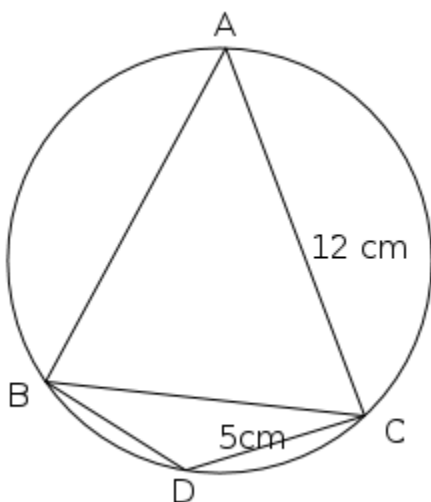
Ans: a) ∠ACB =60°

b) ∠D = 120°

c) ∠BCD = 30°

d) ∠ACD = 90°

AD = 13cm

Que 12:
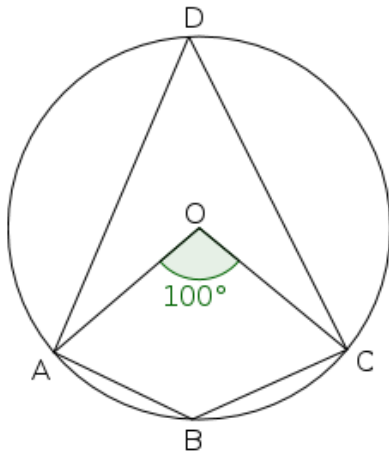
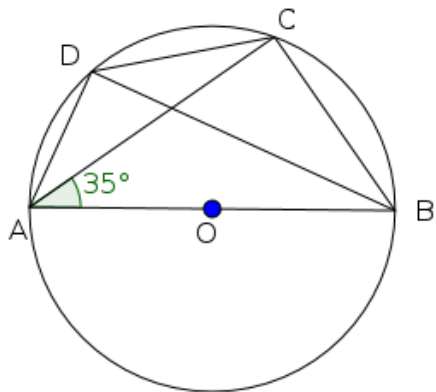**In the figure O is the centre of the circle. If ∠AOC=100°** *Marks :(2)*

Find ∠ABC ?

Ans:

$$\angle ADC = \frac{1}{2} \times \angle AOC = \frac{1}{2} \times 100° = 50°$$

$$\angle ABC = 180° - 50° = 130°$$

Que 13: In the figure ∠BAC = 35° find the measures of ∠BDC and ∠ADC?
Marks :(2)

Ans: ∠BDC = 35°

∠ADC = ∠ADB + ∠BDC = 90 + 35 = 125°

Que 14: In the figure O is the centre of the circle. If ∠ AOB = 80° Find the measures of ∠ OCB and ∠ OBC   *Marks :(2)*
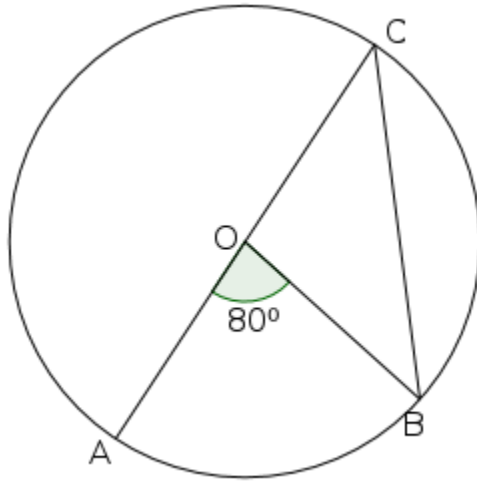
Ans:

$$\angle OCB = \frac{1}{2} \times \angle AOB = \frac{1}{2} \times 80° = 40°$$
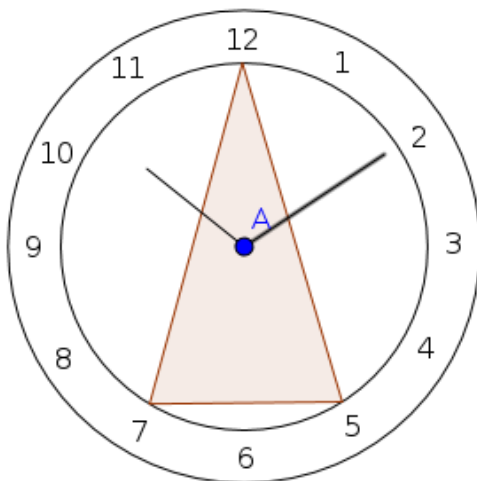
ΔOBC is isosceles, so ∠OBC= 40°

Que 15: In the figure of a clock, numbers 12, 7, and 5 are joined to form a triangle.

(a) What are the measure of the angles of this triangle ?

(b) Give a suitable name for this triangle.

(c) How many such triangles can be drawn in this clock ?   *Marks :(5)*
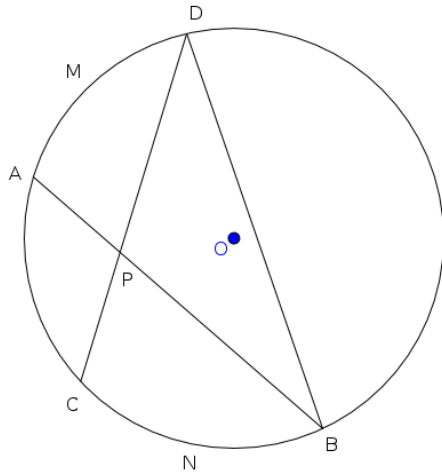
Ans: Angles are 75°, 75°, 30°

Isosceles triangle

12

Que 16:

In the figure the length of the arc CNB is 1/5 of the perimeter of the circle and the length of the arc AMD is 1/6 of the perimeter of the circle.

(a) What is the measure of centre angle of the arc CNB ?

(b) Find the measure of ∠CDB ?

(c) Find the measurement of ∠ ABD.

(d) Write the measurement of ∠ APD. *Marks :(5)*

Ans:

- Centre angle of arc CNB = 72°
- ∠ CDB = 36°
- ∠ ABD = 30°
- ∠ APD = 66°

Que 17: In the figure chords CE, GD, CF are extended to meet outside the circle at A and B. The lengths AG and BD are equal. *Marks :(4)*

If AE x AC = AG x AD

(a) Write the product equal to BF x BC?

(b) Prove that AE x AC = BF x BC

Ans:
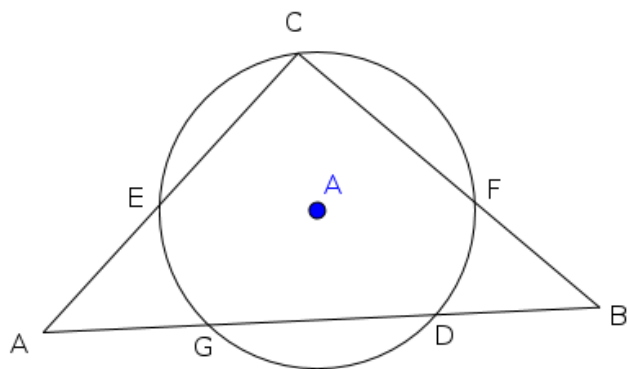
- BD x BG
- AG x AD = BD x BG
- BF x BC = AG x AD
- BF x BC = AE x AC

Que 18: In the figure O is the centre of the circle and ED is its diameter.

If ∠EGP = 67°

(a) What is the measure of ∠ EDP.
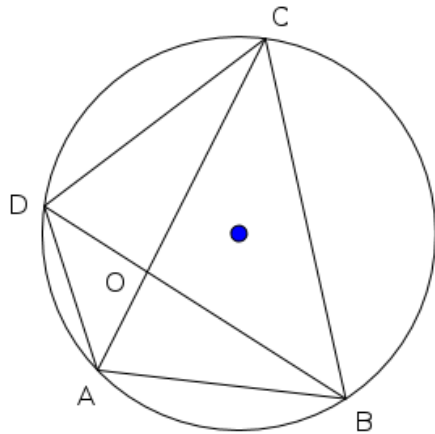
(b) Find other two angles of Δ ODP ? *Marks :(3)*
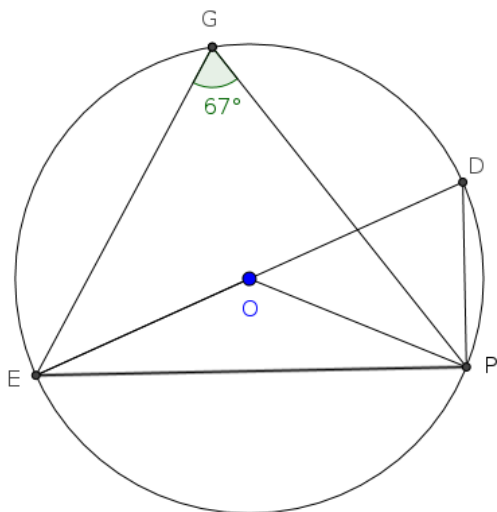
Ans:

- a) ∠ EDP= 67°
- b) ∠ DOP = 46°, ∠ OPD = 67°

Que 19: Based on the figure find the angles from Part 2 which is equal to the angles in Part 1 *Marks :(3)*

Part 1	Part 2
∠ACB	∠BDC
∠ABD	∠AOD
∠BAC	∠ADB
	∠ACD

Ans: ∠ACB = ∠ADB

∠ABD = ∠ACD

∠BAC = ∠BDC

Que 20: In the figure O is the centre of the circle and AB is the diameter. If ∠BOC = 120°, Find ∠ OCA and ∠ OAC ? *Marks :(2)*
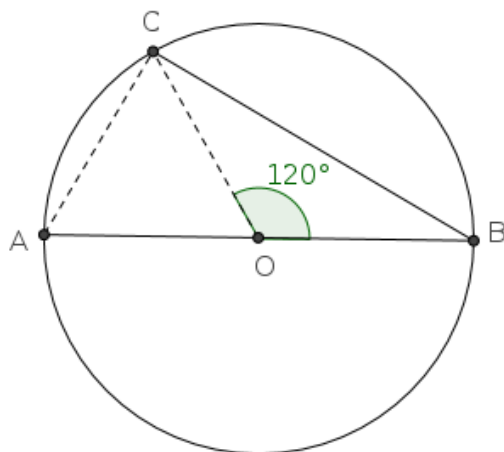
Ans: ∠OCA = ∠OAC = 60°

Que 21: In the figure O is the centre of the circle. ΔABC is equilateral

Find the measures of *Marks :(2)*

a) ∠A

b) ∠BOC

Ans: a) ∠A= 60°
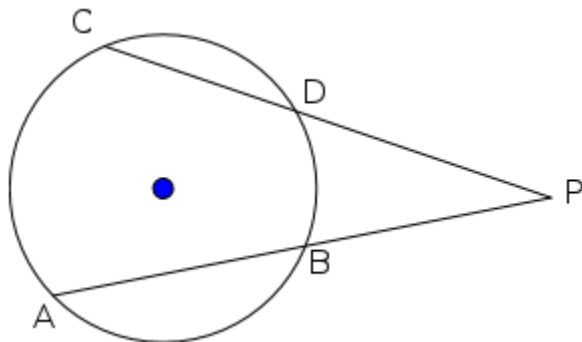
b) ∠BOC = 120°

Que 22: In the figure PC = 10 cm, CD=4cm, and PB:PA=2:3. Then

a) Find the length of PD

b) Find the length of AB *Marks :(5)*

Ans:

a) PD = 6cm

b) PA x PB = PC x PD,

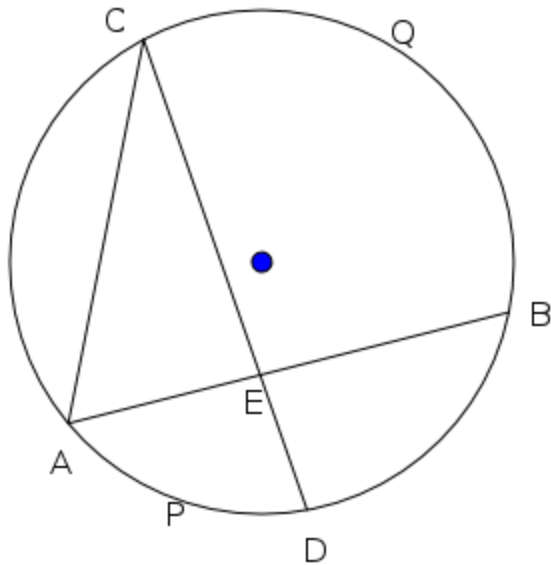PB : PA= 2 : 3, PB = 2x, PA = 3x

$3x \times 2x = 10 \times 6$,

$x^2 = \dfrac{60}{6}$ =10

$x = \sqrt{10}$

AB = PA- PB = 3x – 2x = x = $\sqrt{10}$

Que 23: In the circle the chords AB and CD intersect at E. The central angle of arc BQC is 130°. The central angle of arc APD is 40°. Find *Marks :(3)*

a) ∠ACE

b) ∠CAE

c) ∠BEC

Ans: a) ∠ACE = 20°

b) ∠CAE = 65°

c) ∠BEC= 85°

Que 24: Based on the figure write the angles from △ BPD equal to the following angles in △ APC *Marks :(2)*

a) ∠ACP

b) ∠CAP
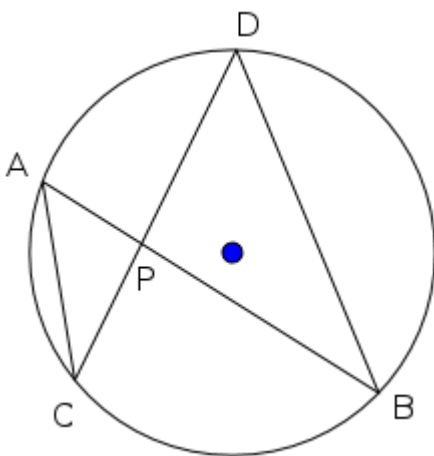
Ans: a) ∠ACP = ∠PBD

b) ∠CAP = ∠ PDB

Que 25: In the figure PA=9cm, PB=4cm, and PC is 9cm more than PD

(a) If PD = x find the length of PC ?   *Marks :(4)*
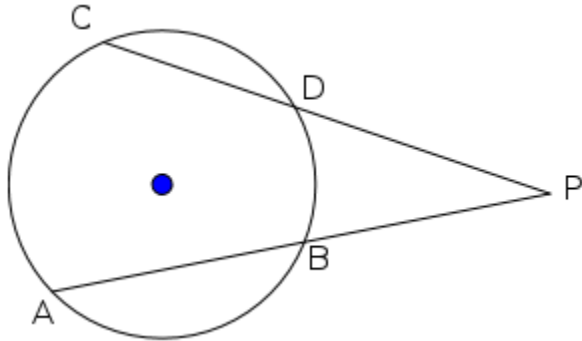
(b) Find the length of PD ?

Ans: (a) PD = x, PC = x + 9

(b) PA x PB = PC x PD
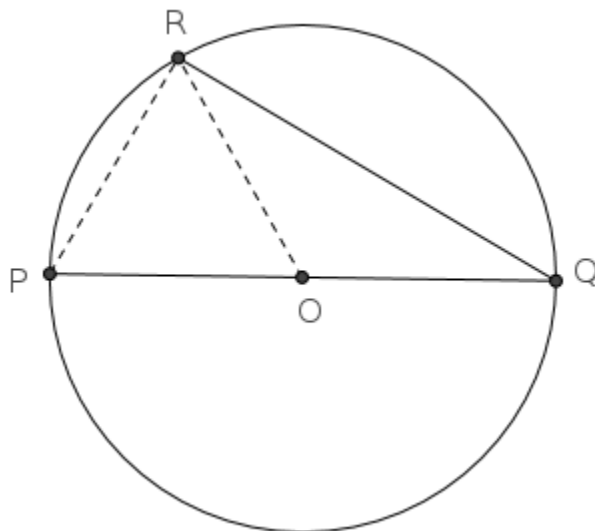
9 x 4 = (x + 9)x

x^2 + 9x = 36, x = 3

PC = 12

PD = 3

Que 26: In the figure O is the centre of the circle and PQ is its diameter.

If PR = OR
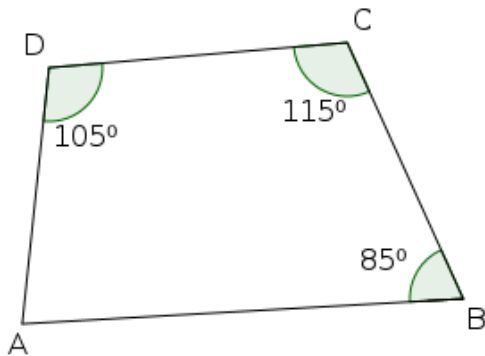
(a) Prove that Δ OPR is an equilateral triangle.

(b) Find all the angles of Δ OQR.   *Marks :(3)*

Ans: For finding the angles of ΔOPR are 60°

For finding the angles of Δ OQR

Que 27: In the figure ABCD is a quadrilateral. If a circle is drawn through A, B, and D state the position of the point C as Outside the circle, Inside the circle, or On the circle? Justify your answer. *Marks :(3)*
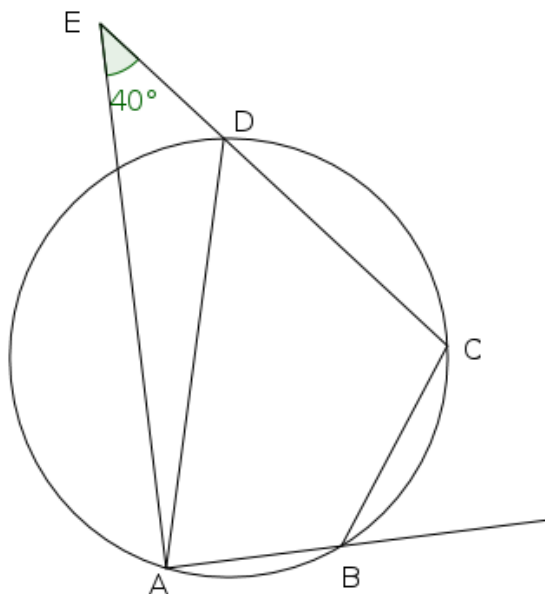

Ans: ∠A=55°

∠A + ∠C < 180

C is outside the circle

Que 28: In the figure ∠ AED=40° then

Which of the following can be the measure of ∠ABC? *Marks :(3)*

(140°, 130° , 150°, 180°)

Using the above measure of ∠ABC, find the measures of angels of ΔEAD

Ans: ∠ ABC=130° (∠ABC + ∠E < 180)
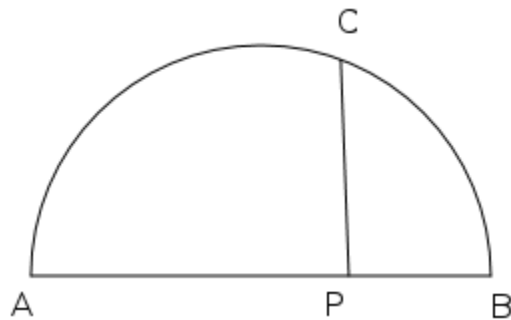
∠ EDA=130° ,<EAD =10°

Que 29: In the figure AB is the diameter of the semicircle. IF AB = 9 cm, PB = 3 cm then

a) find PA ?

b) find PC² ?

c) Draw a square of area 18cm²?   *Marks :(5)*

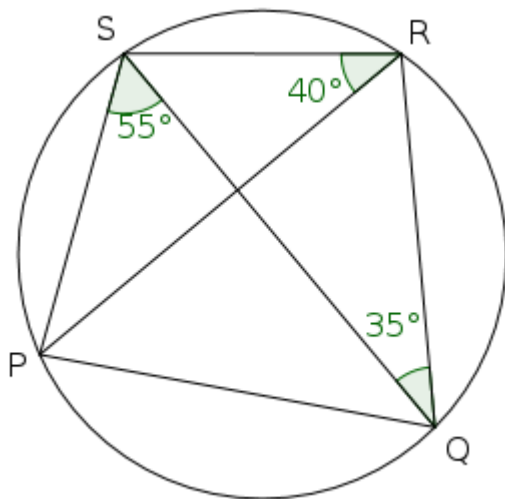**Ans:** a) PA = 6 cm

b) PC² = PA x PB = 6 x 3 = 18

c) For Drawing the square by copying the figure

Que 30: In the figure P,Q,R,S are points on a circle. Find all angles of quadrilateral PQRS?   *Marks :(4)*

 Ans: ∠PSR = 105°

∠ SPQ =85°

∠PQR=75°

∠QRS=95°

Que 31: Qn. Draw the figure in your paper.

(a) Mark a point C on the circle with ∠ MBC = 30°

(b) Join M, B, C to get a triangle.

(c) Find other two angles of the triangle MBC

(d) Write the ratio of the smallest side to the radius of this triangle.
Marks :(5)

Ans: (a) For Drawing ∠MBC = 30°

(b) Joining the points M, B, C and making triangle

(c) For finding other angles of Δ MBC
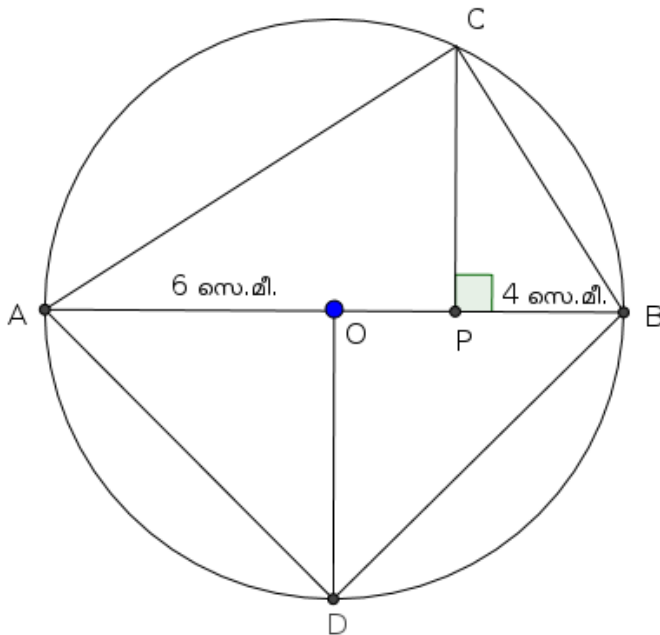
(d) For finding the ratio as 1 : 1

Que 32: In the figure O is the centre and AB is the diameter of the circle. PC is perpendicular to AB. If $PA \times PB = PC^2$

(a) What is the length of OP ?

(b) Find the length of PC .

(c) Write the ratio of the areas of Δ PBC and Δ APC ?

(d) Find the area of quadrilateral ACBD.   *Marks :(5)*

Ans: (a) OP = 2cm.
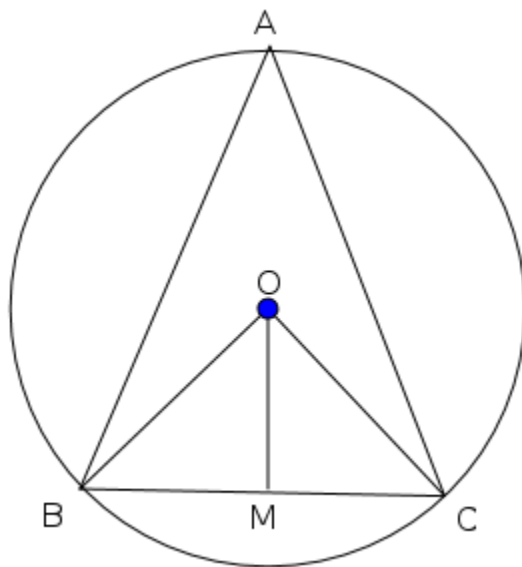
(b) PC = √32

(c) For finding the ratio as 1 : 2

(d) 36 + 6 √32

Que 33: A, B, and C are points on the circle with centre O. If ∠A = 60°, BC = 4cm then

Find ∠BOC

(1) Find the circumradius

(2) When ∠A = 30°, Prove that BC is equal to circumradius. *Marks :(5)*

Ans:

(a) ∠BOC = 120°

(b) ∠CBO = 30° (30, 60, 90) (1: $\sqrt{3}$: 2)

$OB = 2 \times \dfrac{2}{\sqrt{3}} = \dfrac{4}{\sqrt{3}}$

(c) When ∠A= 30° Triangle OBC becomes equilateral

OB=BC

Que 34: In the figure the diameter of the larger semi circle is 13 cm AP=8cm, PQ = 4 cm.

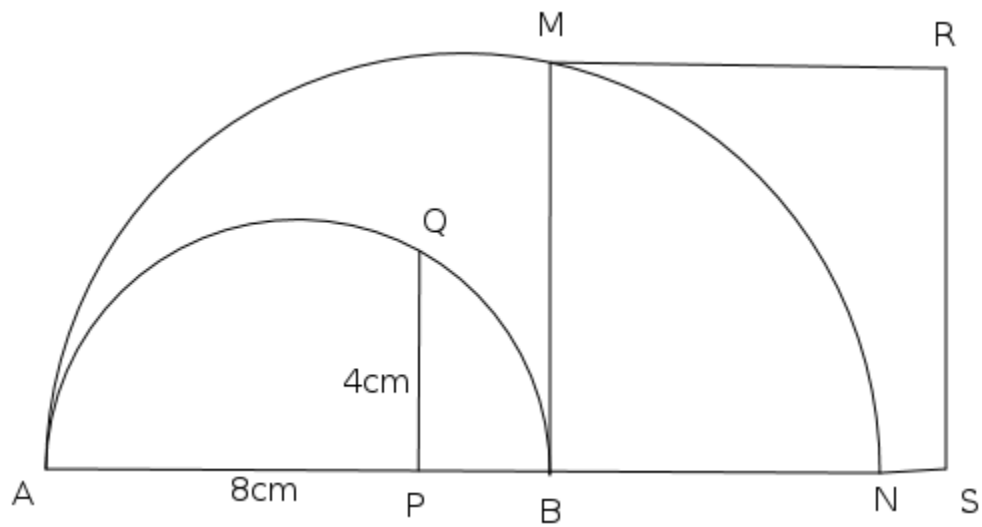**(a) Then PA x PB =.............**

(b) PB = ...

(c) Find the radius of the smaller semicircle?

(d) What is the area of the square BMRS?   *Marks :(5)*

Ans: a) 0 PA x PB = PQ² = 16

(b) PB = 2

(c) Radius of the small semicircle =5 cm

BM² = 10 x 3

(d) Area of the square BMRS = 30