ONLINE MATHS CLASS - X - 21 (21 / 08 /2020)

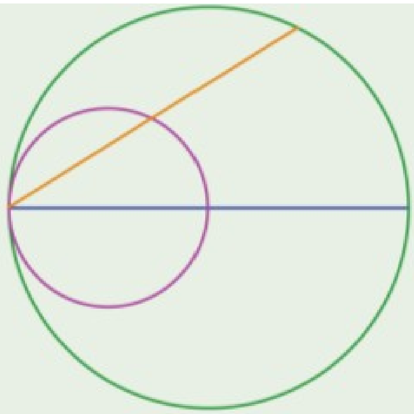
What did we learn in the last class ?

The angle formed by joining the end points of diameter of a circle to a point inside the circle is greater than 90 º , on the circle is 90 º and outside the circle is less than 90 º .

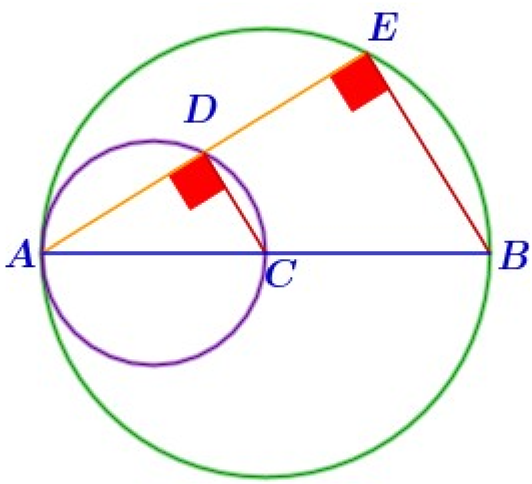
Let's discuss the application of the ideas already we have learned .

1.

In the picture, a circle is drawn with a line as diameter and a smaller circle with half the line as diameter. Prove that any chord of the larger circle through the point where the circles meet is bisected by the small circle.



Answer.



In the figure C is the centre of the larger circle .

AC is the diameter of the smaller circle and AB is the diameter of the larger circle .The chord AE of the larger circle cuts the smaller circle at D

< ADC = < AEB = 90º

(Angle in a semicircle is right)

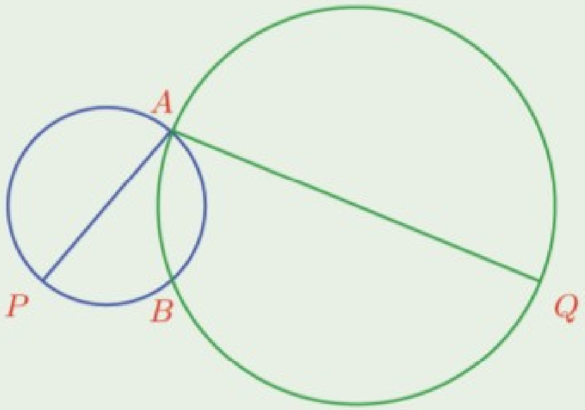
==> The line CD is perpendicular to the chord AE .

Therefore AD = DE (The perpendicular from the centre of a circle to a chord bisects the chord)

Points to be remember : C is the centre of the larger circle and AE is a chord on it

2.

The two circles in the picture cross each other at A and B. The points P and Q are the other ends of the diameters through A.

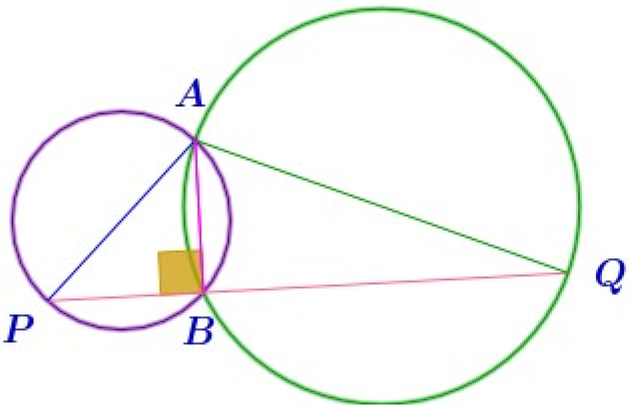


i) Prove that P, B, Q lie on a line.

ii) Prove that PQ is parallel to the line joining the centres of the circles and is twice as long as this line.

Answer.

In the figure AP is the diameter of the smaller circle and AQ is the diameter of the larger circle .



i) *Join AB*

$\angle ABP = 90^\circ$ *(Angle in a semicircle of diameter AP)*

Also $\angle ABQ = 90^\circ$

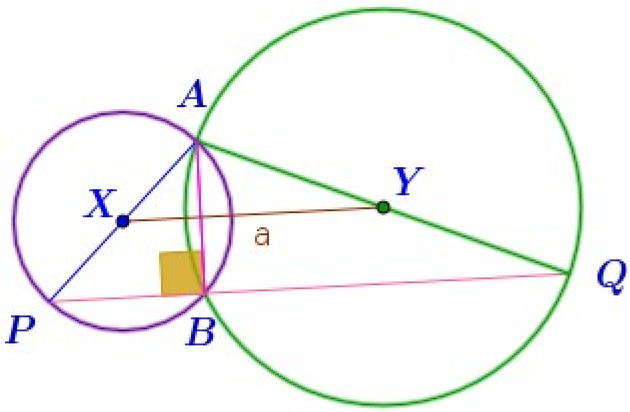
(Angle in a semicircle of diameter AQ)

P , B ,Q *line on a line* . ($\angle ABP + \angle ABQ = 90^\circ + 90^\circ = 180^\circ$, *linear pair*)

ii) *If we take the centre of the smaller circle as X and that of the larger circle is Y , we have*

AX = PX

AY = QY (*Radii of a circle are equal*)



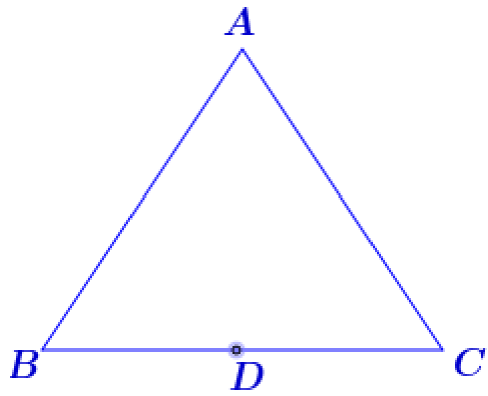
==> *The line PQ is parallel to the side XY* .

Also PQ = 2 x XY (The line joining the midpoints of any two sides of a triangle is parallel to its third side and the length of this line is half the length of the third side)

3.

Prove that the two circles drawn on the two equal sides of an isosceles triangle as diameters pass through the mid point of the third side.

<u>*Answer*</u> .



In the figure AB = AC

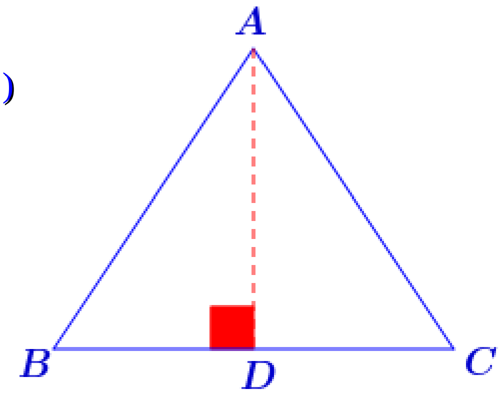
D is the midpoint of BC .

BD = CD

Join AD .

The triangles ABD and ACD are equal

(Since AB = AC , BD = CD , AD = AD)



== > < ADB = < ADC

Also < ADB + < ADC = 180° (*linear pair*)

Therefore < ADB = <ADC = 90 °

==> *So the circle with diameter AB passes through D* .

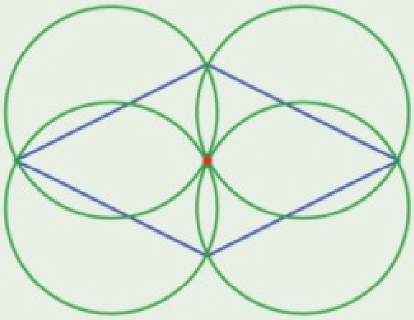
(< ADB = 90 ° , *If a pair of lines drawn from the ends of a diameter of a circle are perpendicular to each other , then they meet on the circle*)

Similarly , *the circle with diameter AC passes through D* . (< ADC = 90 °)

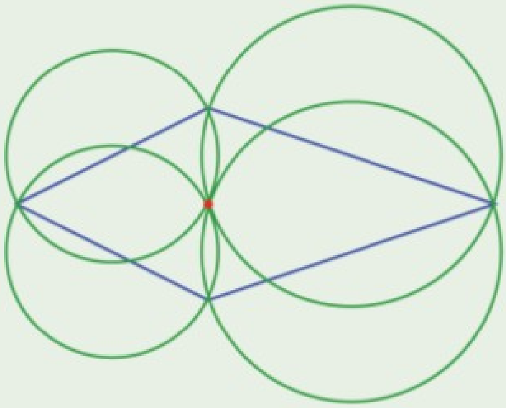
More activities (*Text book page* 43 , 44)

(3) If circles are drawn with each side of a triangle of sides 5 centimetres, 12 centimetres and 13 centimetres, as diameters, then with respect to each circle, where would be the third vertex?

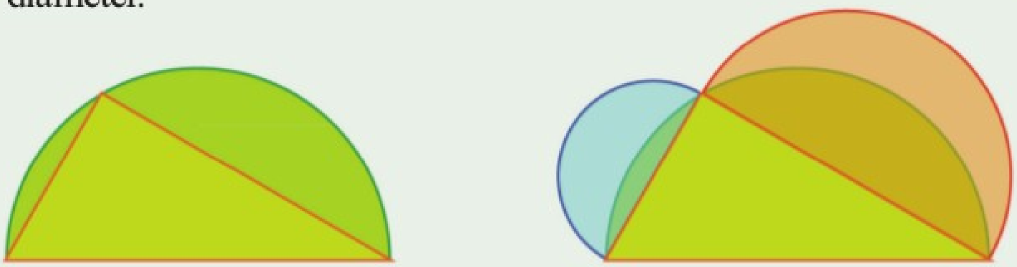
(8) Prove that all four circles drawn with the sides of a rhombus as diameters pass through a common point.



Prove that this is true for any quadrilateral with adjacent sides equal, as in the picture.



(9) A triangle is drawn by joining a point on a semicircle to the ends of the diameter. Then semicircles are drawn with the other two sides as diameter.



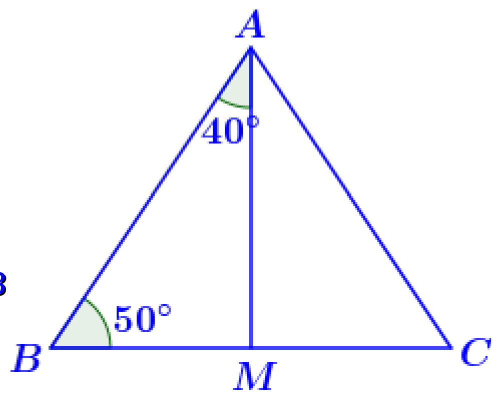
Prove that the sum of the areas of the blue and red crescents in the second picture is equal to the area of the triangle.

ONLINE MATHS CLASS - X - 21 (21 / 08 /2020)

WORKSHEET

1.*In the figure AM is the bisector of* < BAC .

< *BAM* = 40 °, < *ABM* = 50 °



a) *What is the measure of* < *AMB* ?

b) *Find out whether the point M is inside the circle , on the circle or outside the circle if a circle is drawn with AB as diameter ?*

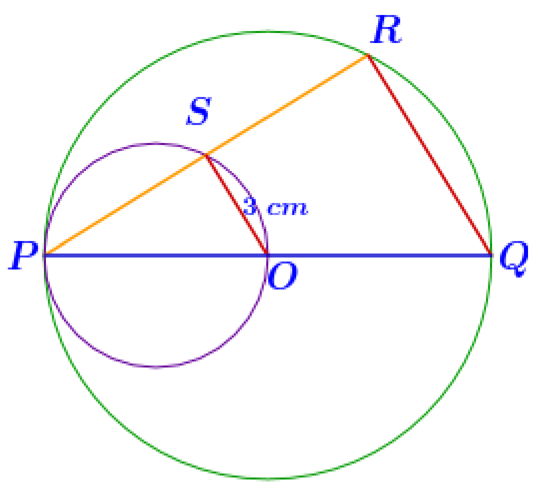
c) *What is the measure of* < *ACM* ?

d) *Find out whether the point C is inside the circle , on the circle or outside the circle if a circle is drawn with AM as diameter ?*

2. *In the figure O is the centre of the larger circle . and PR is a chord on it . The circle drawn with diameter OP cuts PR at S .*

The diameter of the larger circle is 10 cm and

OS = 3 *cm*



a) *What is the measure of* < *PSO* ?

b) *What is the length of the line PS* ?

c) *What is the length of the chord PR* ?

d) *What is the measure of* < *PRQ* ?

e) *What is the length of the line QR* ?

f) *What is the area of the triangle PQR* ?

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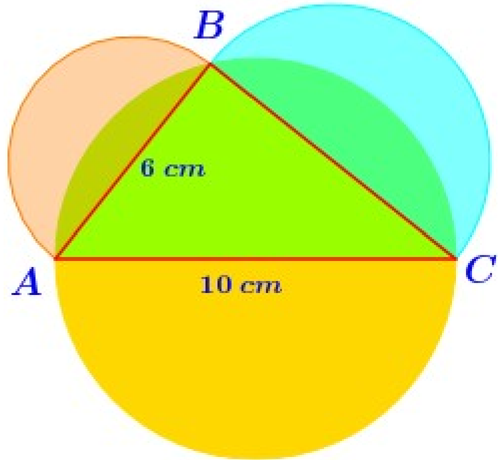
3. B is a point on the circle with diameter AC .

AC = 10 cm , AB = 6 cm .



a) What is the measure of < ABC ?

b) What is the area of the semicircle with diameter AB ?

c) What is the length of the line BC ?

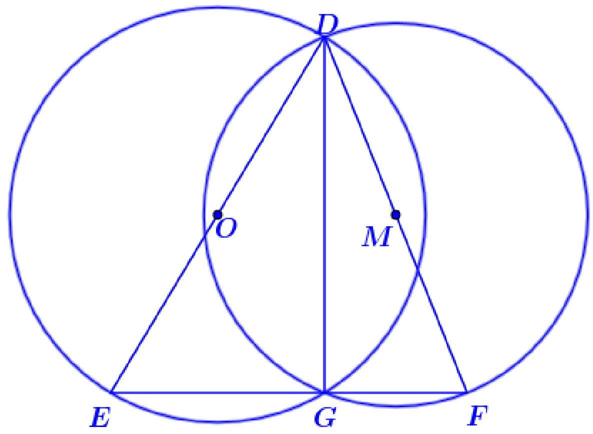
d) What is the area of the semicircle with diameter BC ?

e) What is the area of the semicircle with diameter AC ?

f) What is the relation connecting the areas of the semicircles with diameters AB , BC and AC?

4. In the figure circles with centres O and M intersect at the points D and G

DE = 15 cm , DG = 12 cm ,DF = 13 cm .



a) What is the measure of < DGE ?

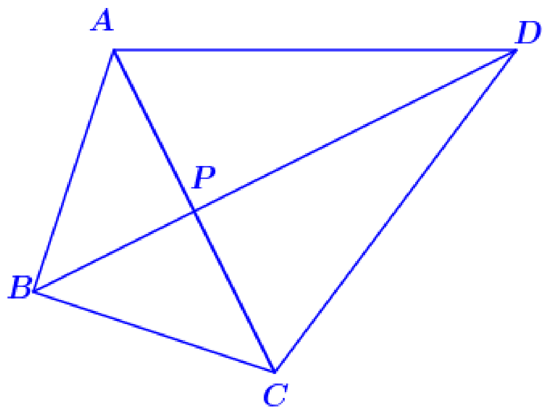
b) What is the length of the line EG ?

c) What is the length of the line GF ?

d) What is the length of the line EF ?

e) What is the length of line joining the centres of the circles ?

5. In the figure AB = BC , AD = CD



a) Which triangle is equal to the triangle ABD ?

b) Which angle is equal to < ABD ?

c) Which triangle is equal to the triangle ABP ?

d) Which angle is equal to < APB ?

e) Find out whether the point P is inside the circle , on the circle or outside the circle if a circle is drawn with BC as diameter ?

ONLINE MATHS CLASS - X - 22 (24 / 08 /2020)

WORKSHEET

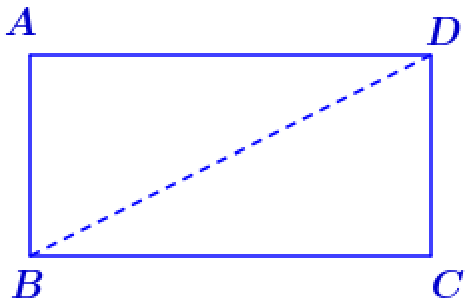
1. $\angle APB = 130^\circ$, $\angle AQB = 50^\circ$, $\angle ARB = 90^\circ$. A circle is drawn with AB as diameter .

a) *Find out whether the point P is inside the circle , on the circle or outside the circle ?*

b) *Find out whether the point Q is inside the circle , on the circle or outside the circle ?*

c) *Find out whether the point R is inside the circle , on the circle or outside the circle ?*

2. *In the figure ABCD is a rectangle .*

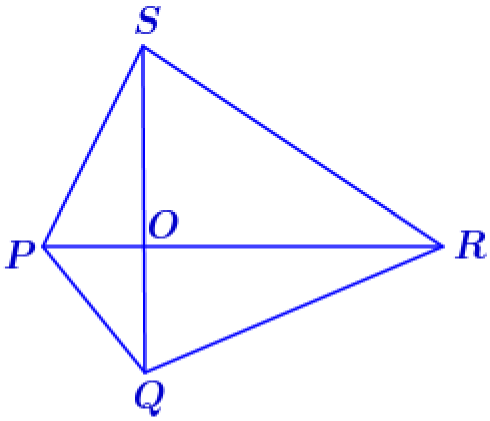


a) *What is the measure of $\angle C$?*

b) *Find out whether the point C is inside the circle , on the circle or outside the circle if a circle is drawn with BD as diameter ?*

c) *Prove that all four circles drawn with the sides of a rectangle as diameters pass through a common point ?*

3. *In the figure the diagonals of the quadrilateral PQRS are perpendicular to each other and they intersect at the point O .*



a) *What is the measure of $\angle POS$?*

b) *Find out whether the point O is inside the circle , on the circle or outside the circle if a circle is drawn with PQ as diameter ?*

c) *Prove that all four circles drawn with the sides of a quadrilateral as diameters pass through a common point if its diagonals are perpendicular to each other ?*

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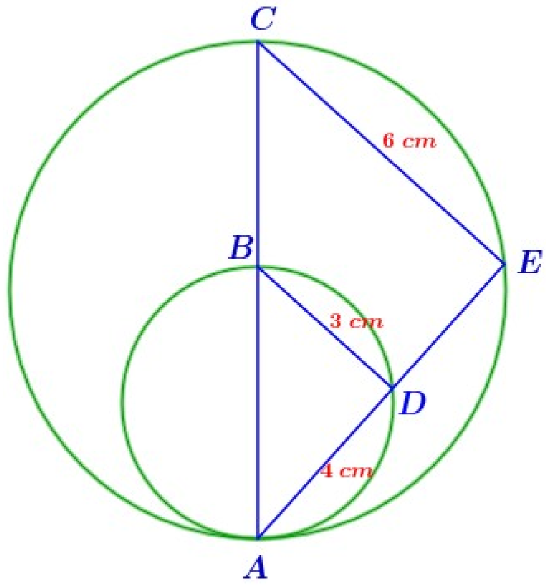
4. *In the figure two circles intersect at A . AB is the diameter of the smaller circle and AC is the diameter of the larger circle .*



AD = 4 cm , BD = 3 cm , CE = 6 cm

a) *What is the measure of* < ADB ?

b) *What is the length of AB* ?

c) *What is the measure of < AEC* ?

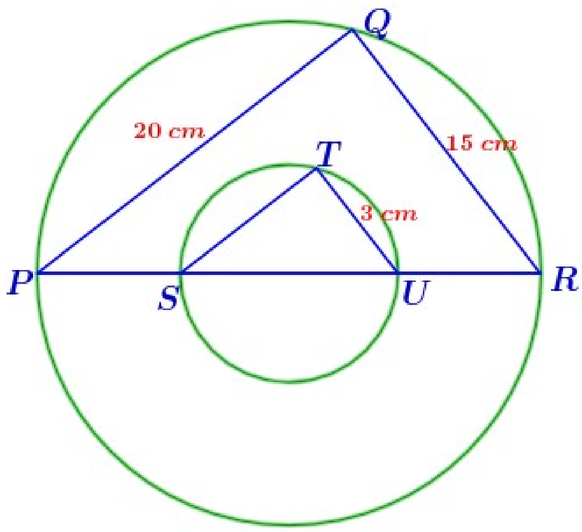
d) *Which angle is common to both the triangles ABD and AEC* ?

e) *What is the length of AE* ?

f) *What is the perimeter of the triangle AEC* ?

5. *In the figure PR is the diameter of the larger circle and SU is the diameter of the smaller circle .*

The line PQ is parallel to the line ST .



PQ = 20 cm , QR = 15 cm , TU = 3 cm

a) *What is the measure of* < PQR ?

b) *What is the length of* PR ?

c) *What is the measure of* < STU ?

d) *Which angle is equal to* < QPR ?

e) *What is the peculiarity of the triangles PQR and STU* ?

f) *What is the perimeter of the smaller circle* ?

ONLINE MATHS CLASS - X - 22 (24 / 08 /2020)

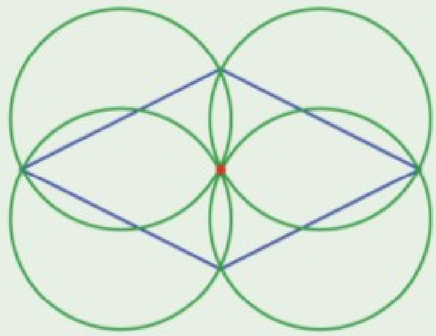
What did we learn in the last class ?

We discussed some problems based on the application of the ideas already we have learned .

Let's again discuss some more problems .

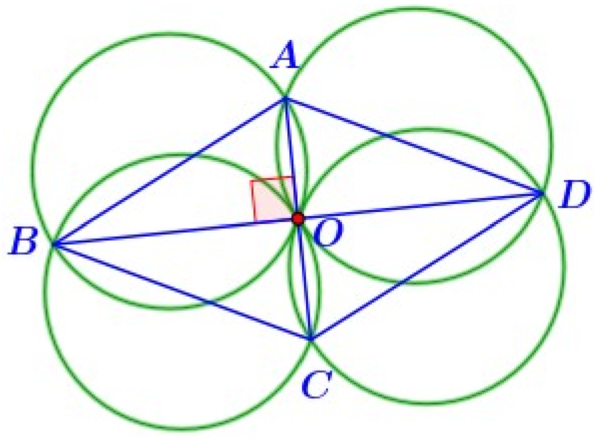
1.

Prove that all four circles drawn with the sides of a rhombus as diameters pass through a common point.



__Answer__ .

In the figure ABCD is a rhombus and its diagonals intersect at O .



< AOB = < BOC = < COD = < AOD = 90º

(The diagonals of a rhombus are perpendicular to each other) .

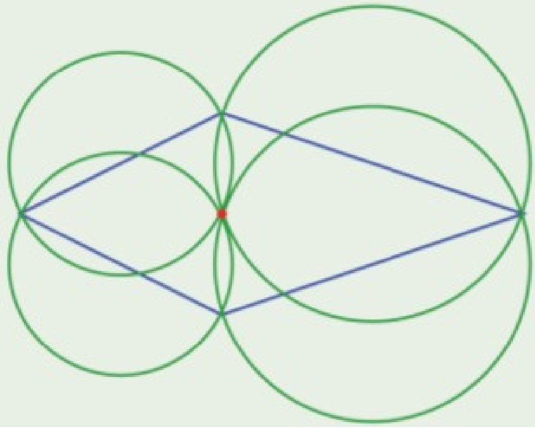
The circle drawn with AB as diameter passes through the point O . (If a pair of lines drawn from the ends of a diameter of a circle are perpendicular to each other , then they meet on the circle)

Similarly circles drawn with BC , CD and AD as diameters pass through the point O

Hence all four circles drawn with the sides of a rhombus as diameters pass through a common point .

2.

Prove that this is true for any quadrilateral with adjacent sides equal, as in the picture.

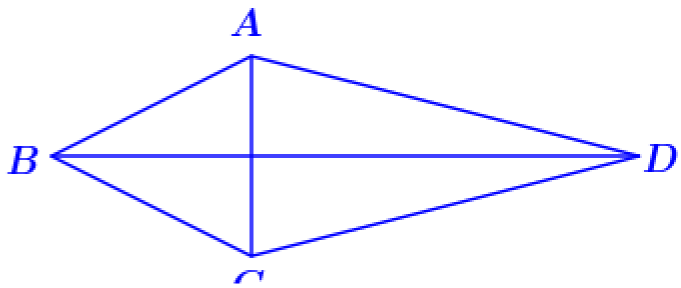


Answer .

In the figure AB = BC , AD = CD

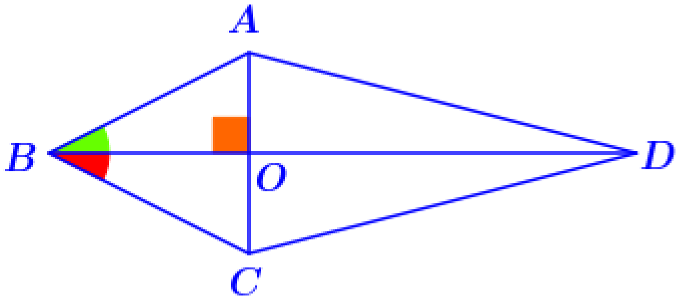
The triangles ABD and BCD *are equal*

(*AB = BC , AD = CD , BD = BD*)



Therefore < ABD = < CBD

(*Angles opposite to equal sides of equal triangles are equal*)



Also the triangles AOB and BOC are equal (AB = BC , < ABO = < CBO , BO = BO)

Therefore *< AOB = < BOC*

Also , < AOB + < BOC = 180º (*linear pair*)

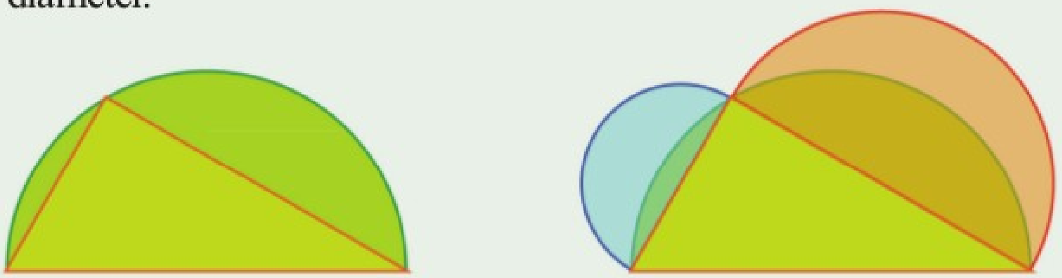
Therefore < AOB = < BOC = 90 º

The circle drawn with AB as diameter passes through the point O . (*If a pair of lines drawn from the ends of a diameter of a circle are perpendicular to each other , then they meet on the circle*)

Similarly circles drawn with BC , CD and AD as diameters pass through the point O

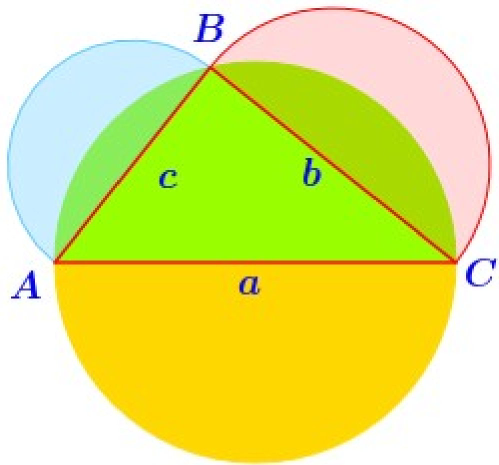
3.

A triangle is drawn by joining a point on a semicircle to the ends of the diameter. Then semicircles are drawn with the other two sides as diameter.



Prove that the sum of the areas of the blue and red crescents in the second picture is equal to the area of the triangle.

Answer .



B is a point on the circle with AC as diameter .

< ABC = 90 ° (*Angle in a semicircle*)

If we take , AC = a , BC = b , AB = c

$c^2 + b^2 = a^2$ (*Pythagoras theorem*)

Area of the semicircle with AB as diameter $= \frac{1}{2} \times \pi \times (\frac{c}{2})^2$

$= \frac{1}{2} \times \pi \times \frac{c^2}{4} = \frac{1}{8} \times \pi c^2$

Area of the semicircle with BC as diameter $= \frac{1}{2} \times \pi \times (\frac{b}{2})^2$

$= \frac{1}{2} \times \pi \times \frac{b^2}{4} = \frac{1}{8} \times \pi b^2$

Area of the semicircle with AC as diameter $= \frac{1}{2} \times \pi \times (\frac{a}{2})^2$

$$= \frac{1}{2} \times \pi \times \frac{a^2}{4} = \frac{1}{8} \times \pi a^2$$

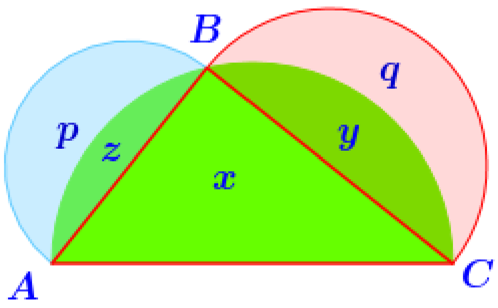
Area of the semicircle with AB as diameter + Area of the semicircle with BC as diameter

$$= \frac{1}{8} \times \pi c^2 + \frac{1}{8} \times \pi \times b^2$$

$$= \frac{1}{8} \times \pi (c^2 + b^2)$$

$$= \frac{1}{8} \times \pi a^2$$

= Area of the semicircle with AC *as diameter*



Let's take the area of the triangle as x, area of the blue crescent as p , area of the red crescent as q and the areas of the region common to the semicircles as y and z

Area of the semicircle with AB as diameter + Area of the semicircle with BC as diameter

= Area of the semicircle with AC as diameter

$$(p + z) + (q + y) = z + x + y$$

That is ,

$$p + q + y + z = x + y + z$$

$$p + q = x$$

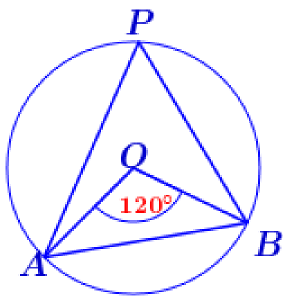
Area of the blue crescent + Area of the red crescent = Area of the triangle

ONLINE MATHS CLASS - X - 23 (26 / 08 /2020)

WORK SHEET

1. *In the figure O is the centre of the circle and AB is a chord* .

   < *AOB* = 120 ° . *Find the measure of* < APB ?



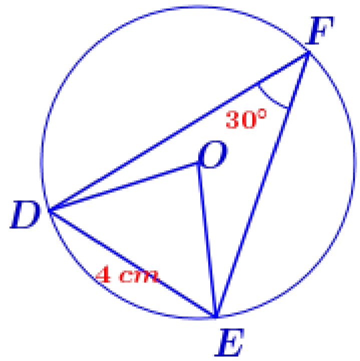
2. *In the figure O is the centre of the circle and DE is a chord* . .

   < DFE = 30 ° and DE = 4 *cm* .

   a) *What is the measure of* < *DOE* ?

   b) *What is the measure of* < *ODE* ?

   c) *What is the perimeter of the circle* ?



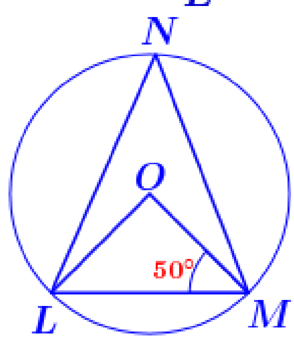
3. *In the figure O is the centre of the circle and LM is a chord* .

   < OML = 50 °

   a) *What is the measure of* < OLM ?

   b) *What is the measure of* < LOM ?

   c) *What is the measure of* < LNM ?

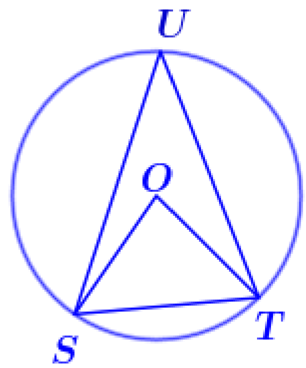


4. *In the figure O is the centre of the circle and ST is a chord*

   OS = ST

   a) *What is the measure of* < SOT ?

   b) *What is the measure of* < SUT ?



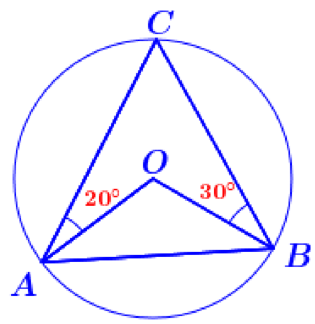
5. *In the figure O is the centre of the circle and AB is a chord* .

   < OAC = 20 ° , < OBC = 30 °

   a) *What is the measure of* < ACB ?

   b) *What is the measure of* < AOB ?

   (*Hint* : *Join OC*)



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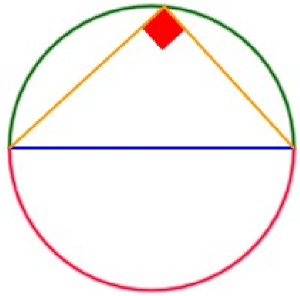
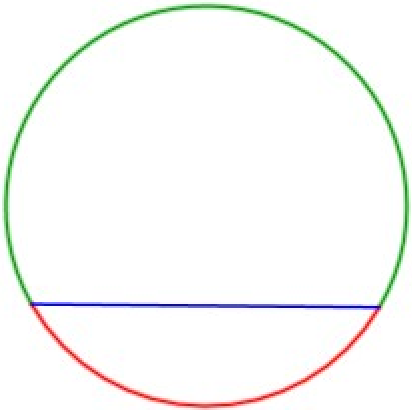
If we draw a diameter of a circle , it will cut the circle into two equal parts (semicircles)



We have already learned that the angle formed by joining the ends of the chord to a point on this parts of the circle is right

What happens if we draw a non diametrical chord ?



Is this non diametrical chord bisect the circle ?

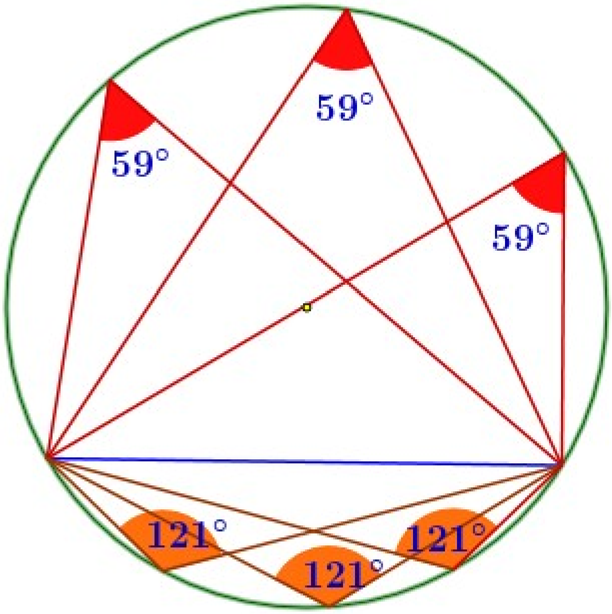
No . A non diametrical chord divides a circle into a larger and a smaller parts .

Are there any peculiarity among the angles formed by joining the ends of a non diametrical chord to the points on the larger and smaller parts of the circle ?

Activity 1.

Draw a circle of radius 5 cm . Draw a non diametrical chord on it . This chord will divide the circle into two non equal parts . Mark three points on the larger part of the circle obtained and join the ends of the chord to these points . Three angle are obtained . Measure these angles .

Similarly mark three points on the smaller part of the circle obtained and join the ends of the chord to these points . Three angle are obtained . Measure these angles .



Findings

- *A chord divides a circle into two parts .*
- *A non diametrical chord divides the circle into two non equal parts .*
- *Three angles formed by the ends of a non diametrical chord to the points on the larger part of the circle are equal .*
- *Three angles formed by the ends of a non diametrical chord to the points on the smaller part of the circle are equal .*
- *Three angles formed by the ends of a non diametrical chord to the points on the larger part of the circle* are not equal to the angles *formed by the ends of a non diametrical chord to the points on the smaller part of the circle .*

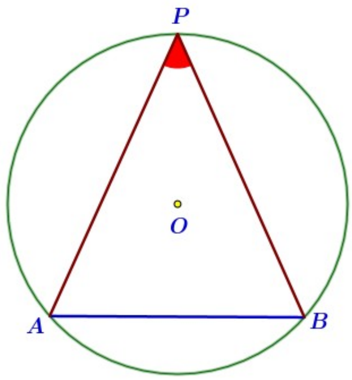
Are the angles formed by the ends of a non diametrical chord to the points on the smaller part of the circle are equal ? . Let's discuss .

Draw a circle centred at O . Draw a chord AB . Mark a point P on the larger part of the circle made by the chord AB . Join the ends of the chord to the point P .

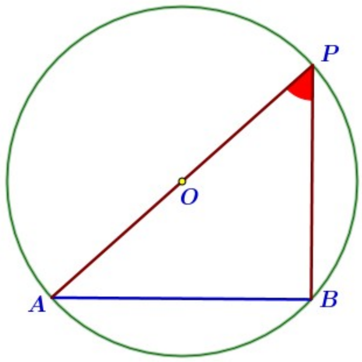
The following situations may arise .

.

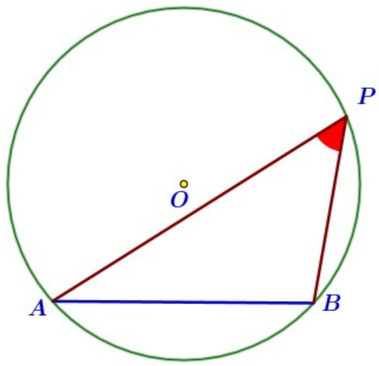
Case : 1



Case : 2



Case : 3



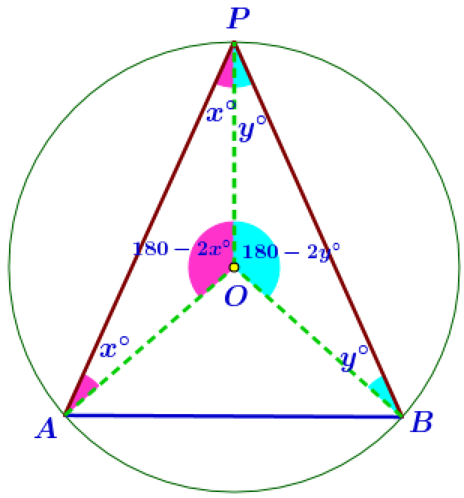
That is , the lines AP and BP may on the either side of the centre (Case 1)

The line AP may pass through the centre (Case 2)

The lines AP and BP may on the same side of the centre (Case 3)

What is the value of < APB in all these situations ? Let's discuss .

Case 1 (AP and BP are on the either side of the centre)



Draw the lines OA , OB and OP .

OA = OB = OP (Radii of a circle are equal)

Triangle AOP is an isosceles triangle . (OA = OP)

< OAP = < OP A = $x°$

==> *< AOP* = 180 – 2 $x°$ *(Sum of the angles of a triangle is* 180 °)

Triangle BOP *is an isosceles triangle . (OB = OP)*

< OBP = < OPB = $y°$

==> < BOP = 180 - 2 $y°$

< AOB = 360 ° - (180 - 2 $x°$ + 180 - 2 $y°$) *(Angle around a point is 360 °)*

= 360 ° - (180 + 180 - 2 $x°$ - 2 $y°$)

= 360 ° - (360 - 2 $x°$ - 2 $y°$)

= 360 ° - 360 + 2 $x°$ + 2 $y°$ = 2 $x°$ + 2 $y°$ = 2 ($x°$ + $y°$) = 2 x < APB

Findings

$$\angle AOB = 2 \times \angle APB \qquad ==> \qquad \angle APB = \frac{\angle AOB}{2}$$

- *The angle formed by joining the ends of a chord to a point on the larger part of the circle is half the angle made by joining the ends of the chord to the centre of the circle .*
- *Since the angle formed by joining the ends of the chord to the centre of the circle is always a constant , the angle formed by joining the ends of a chord to the points on the larger part of the circle are equal .*

Case 2 (the line AP passes through the centre of the circle)

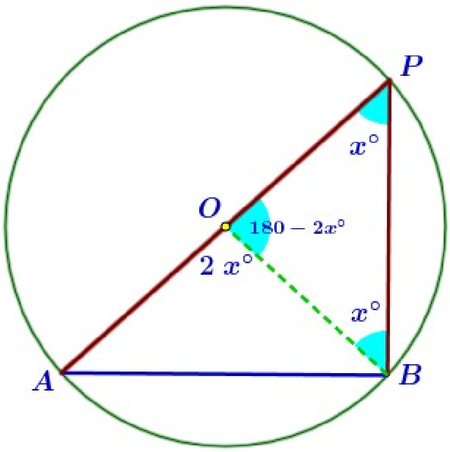
Draw the line OB .

OA = OB = OP (Radii of a circle are equal)

Triangle BOP is an isosceles triangle . (OB = OP)

< *OBP* = <*OPB* = x°

==> < *BOP* = 180 - $2x^\circ$ (*Sum of the angles of a triangle is* 180 ° .)



< *AOB* = 180 ° - (180 - 2 x°) = 180 ° - 180 ° + 2 x° = 2 x° (*linear pair*)

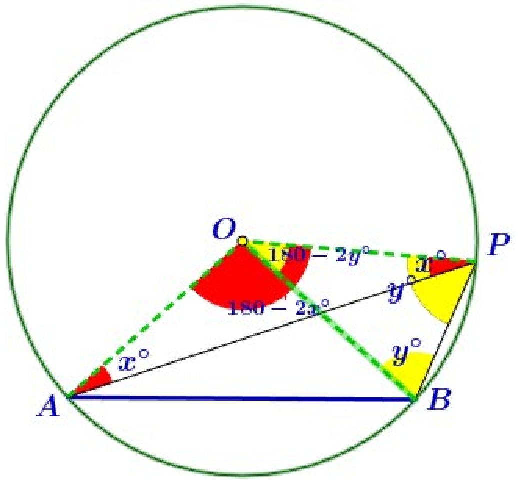
That is , < AOB = 2 x < APB

Findings .(*Case 2*)

$$\angle AOB = 2 \times \angle APB \qquad ==> \qquad \angle APB = \frac{\angle AOB}{2}$$

- *The angle formed by joining the ends of a chord to a point on the larger part of the circle is half the angle made by joining the ends of the chord to the centre of the circle .*
- *Since the angle formed by joining the ends of the chord to the centre of the circle is always a constant , the angle formed by joining the ends of a chord to the points on the larger part of the circle are equal .*

Case 3 (*AP and BP are on the same side of the centre*)



Draw the lines OA , OB and OP .

OA = OB = OP (Radii of a circle are equal)

Triangle AOP is an isosceles triangle . (OA = OP)

< *OAP* = < *OP A* = x°

==> < *AOP* = 180 - 2 x°

Triangle BOP is an isosceles triangle . (OB = OP)

< OBP = < OPB = y °

==> < BOP = 180 – 2 y °

< APB = y° - x°

< AOB = < AOP - < BOP

= 180 - 2 x° - (180 - 2 y°)

= 180 - 2 x° - 180 + 2 y°

= 180 - 180 + 2y° - 2 x°

= 2 y° - 2 x° = 2 (y° - x°) = 2 x < APB

Findings .(*Case* 3)

$$\angle AOB = 2 \times \angle APB \qquad ==> \qquad \angle APB = \frac{\angle AOB}{2}$$

- *The angle formed by joining the ends of a chord to a point on the larger part of the circle is half the angle made by joining the ends of the chord to the centre of the circle .*
- *Since the angle formed by joining the ends of the chord to the centre of the circle is always a constant , the angle formed by joining the ends of a chord to the points on the larger part of the circle are equal .*

From these three situations we can arrive at a conclusion as follows .

Conclusion .

If we joining the ends of a non diametrical chord to any point on the larger part of the circle , we get an angle which is half the size of the angle , we get by joining them to the centre of the circle .

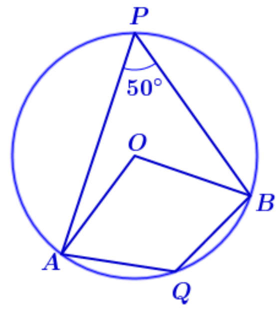
Assignment .

What is the relation among the angles formed by joining the ends of a non diametrical chord to the points on the larger and smaller parts of the circle ?

ONLINE MATHS CLASS - X - 24 (04 / 09 /2020)

WORKSHEET

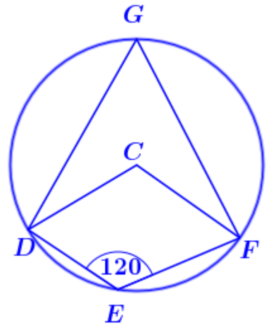
1. *In the figure O is the centre of the circle* . < *APB* = 50 º



a) *What is the measure of* < *AOB* ?

b) *What is the measure of* < *AQB* ?

2. *In the figure C is the centre of the circle* . < DEF = 120 º

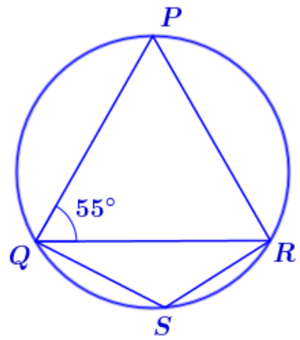


a) *What is the measure of* < DGF ?

b) *What is the measure of* < DCF ?

c) < *CDE* + < *CFE* = ...

3. *In the figure PQ* = *PR* . < *PQR* = 55 º

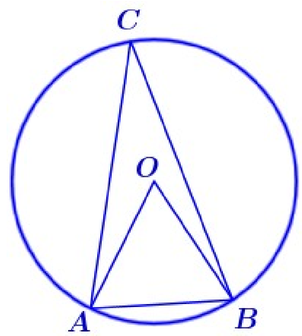


a) *What is the measure of* < *QRP* ?

b) *What is the measure of* < *QPR* ?

c) *What is the measure of* < *QSR* ?

4. *In the figure O is the centre of the circle and* OA = AB



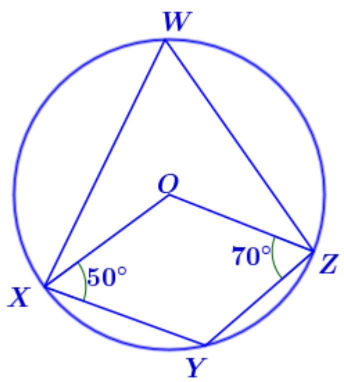
a) *What is the measure of* < *AOB* ?

b) *What is the measure of* < *ACB* ?

c) < *OAC* + < *OBC* = ...

5. *In the figure O is the centre of the circle* . < OXY = 50 º ,

< OZY = 70 º



a) *What is the measure of* < *X Y Z* ?

b) *What is the measure of* < *X W Z* ?

c) *What is the measure of* < *X O Z* ?

(*Hint : Join OY*)

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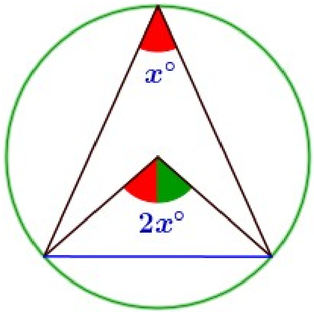


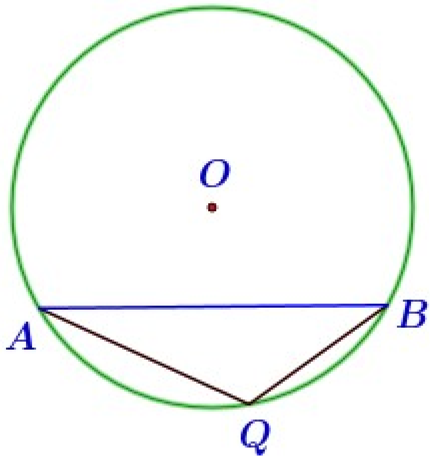
Which concept did we discuss in the last class ?

If we joining the ends of a non - diametrical chord to any point on the larger part of the circle , we get an angle which is half the size of the angle , we get by joining them to the centre of the circle .

We have seen that the angles formed by joining three points on the smaller part of the circle to the ends of a non – diametrical chord are equal .

Are all angles formed by joining any number of points on the smaller part of the circle to the ends of a non – diametrical chord equal ? Is there any relation among these angles to the angle made by the chord at the centre ?

Let's discuss .



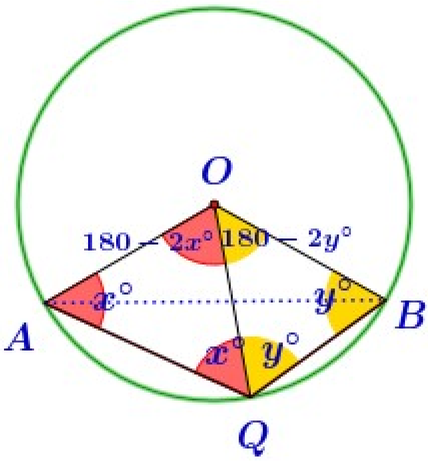
In the figure AB is a non – diametrical chord of a circle centred at O . The chord AB divides the circle into two unequal parts . Q is a point on the smaller part of the circle .

Draw the radii OA , OQ and OB .

OA = OQ = OB (Radii of a circle are equal)

< OAQ = < OQA = x° *(OA = OQ , Triangle OAQ is an isosceles triangle)*

< AOQ = $180 - 2x^\circ$ *(Sum of the angles in a triangle is* 180° *)*



Similarly we have ,

< OBQ = < OQB = y° *(OB = OQ , Triangle OBQ is an isosceles triangle)*

$< BOQ = 180 - 2y^\circ$

$< AQB = x^\circ + y^\circ$

$< AOB = < AOQ + < BOQ$

$= 180 - 2x^\circ + 180 - 2y^\circ$

$= 360 - 2x^\circ - 2y^\circ$

$= 360 - 2(x^\circ + y^\circ) = 360 - 2 < AQB$

That is , $< AOB = 360 - 2 < AQB$

$2 < AQB = 360 - < AOB$

$$< AQB = \frac{360 - < AOB}{2} = 180 - \frac{< AOB}{2}$$

$$< AQB = 180 - \frac{< AOB}{2}$$

Findings

< AOB is the angle made by the chord AB at the centre of the circle . The measure of this angle is constant .So the angle made by joining the ends of the non - diametrical chord to any point on the smaller part of the circle is half the angle at the centre subtracted from 180 ° .

That is theangles made by joining the ends of a non-diametrical chord to any point on the smaller part of the circle are equal .

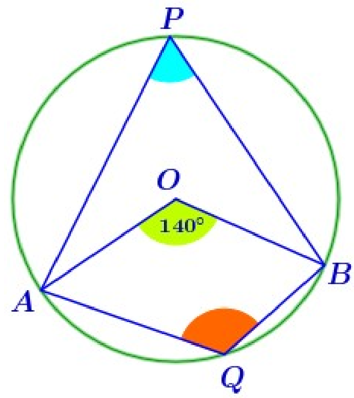
Conclusion .

Any chord which is not a diameter splits the circle into two unequal parts .

The angle got by joining any point on the larger part to the ends of the chord is half the angle got by joining the centre to these ends .

The angle got by joining any point on the smaller part to the ends of the chord is half the angle at the centre subtracted from 180 °

Let's discuss a problem related to the this concept.



1. *If the chord AB makes an angle 140 ° at the centre of the circle .*

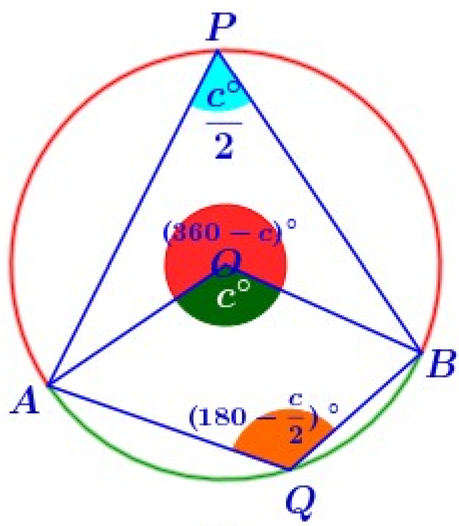
   Find $< APB$ and $< AQB$?

Answer .

$$< APB = \frac{< AOB}{2} = \frac{140}{2} = 70^\circ$$

$$< AQB = 180 - \frac{< AOB}{2} = 180 - \frac{140}{2} = 180 - 70 = 110^\circ$$

We know that if we draw a chord , it will divide the circle into two parts . That is we get two arcs .So the result got from the above activity can be explained in terms of these arcs .



A and B are two points on the circle centred at O .

The points A and B divides the circle into two arcs .

Each of these two arcs is termed as the alternate arc or the complementary arc of the other .

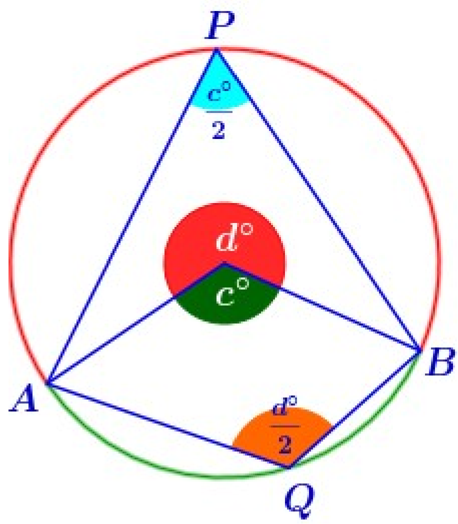
Central angle of an arc

The angle got by joining the ends of an arc to the centre of the circle is known as its central angle .

If we take , the central angle of the smaller arc = c°

Central angle of the larger arc = $(360 - c)^\circ$

(Angle around a point is 360 °)



If we take , the central angle of the larger arc = d° ,

$$\frac{d^\circ}{2} = \frac{360^\circ - c^\circ}{2} = \frac{360^\circ}{2} - \frac{c^\circ}{2} = 180^\circ - \frac{c^\circ}{2}$$

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Findings

- *If the angle made by the smaller arc at the centre of the circle = c°*

the angle made by the smaller arc on the alternate arc = $\frac{c^\circ}{2}$

- *If the angle made by the larger arc at the centre of the circle = d°*

the angle made by the larger arc on the alternate arc = $\frac{d^\circ}{2}$

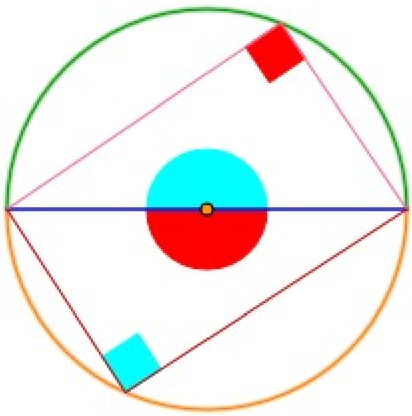
- $$\frac{c}{2} + \frac{d^\circ}{2} = \frac{c^\circ}{2} + 180^\circ - \frac{c^\circ}{2} = 180^\circ$$

- *A pair of an angles on an arc and its alternate are supplementary .*
- *All angles made by an arc on the alternate arcs are equal .*

Conclusion .

The angle made by an arc of a circle on the alternate arc is half the angle made at the centre .

What is the measure angle got by joining the ends of a diameter to any point on the circle using this concept ?



A diameter divides the circle into two equal parts (semicircles)

We know that the central angle of a semicircle is 180 ° .

The angle made by the semicircle on one side of the diameter is half the angle made at the centre . That is 90 °

Similarly the angle made by the semicircle on the other side of the diameter is half the angle made at the centre . That is 90 ° .

That is , angle in a semicircle is right .

More activities ***(Text book page 53)***

(1) In all the pictures given below, O is the centre of the circle and A, B, C are points on it. Calculate all angles of ΔABC and ΔOBC in each.