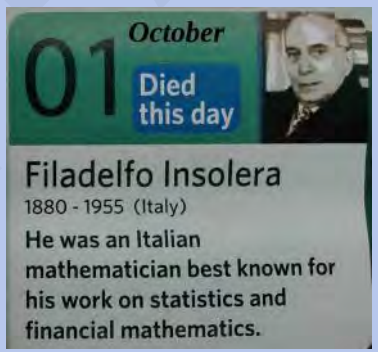
WORKSHEET FOR 1st October SEPTEMBER 2020

SAMAGRA SHIKSHA ABHIYAN
QUALITY EDUCATION FOR ALL

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics



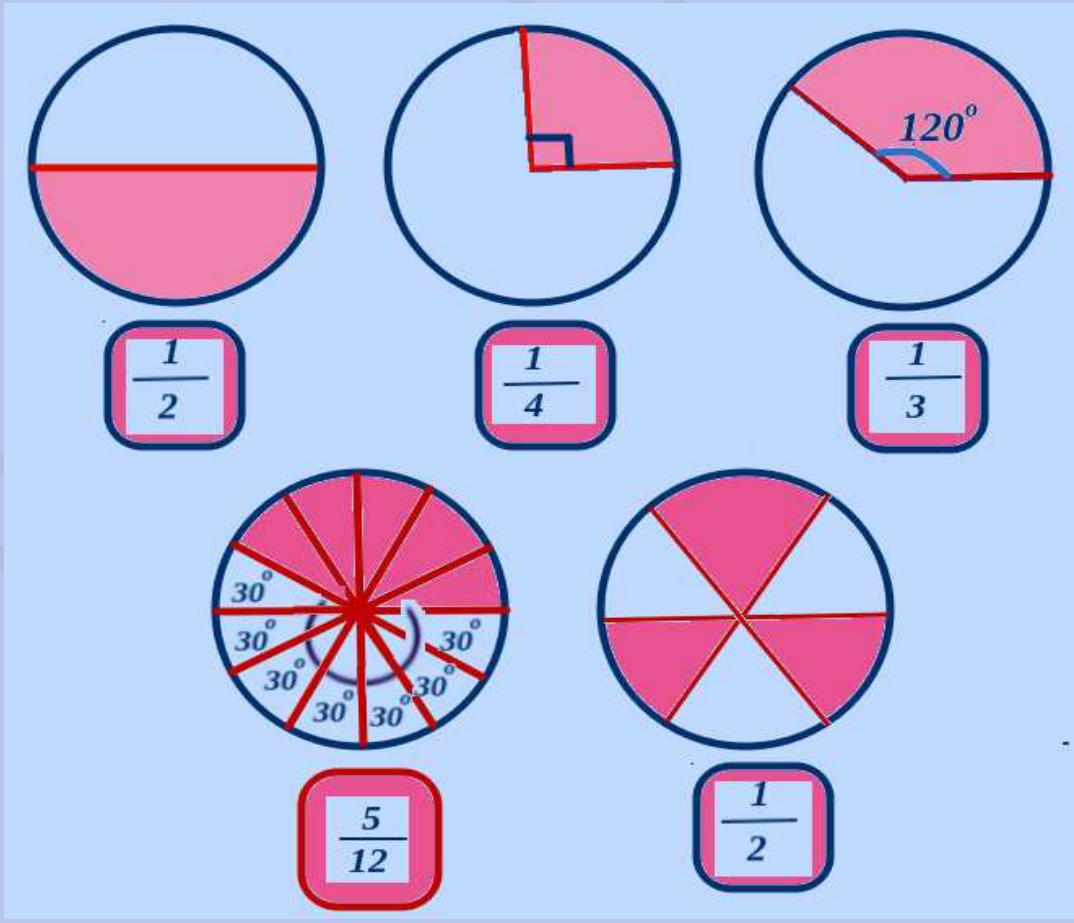
KITE VICTERS STD 10

Mathematics - Class - 38

WORKSHEET FOR 1st October SEPTEMBER 2020

Try this....

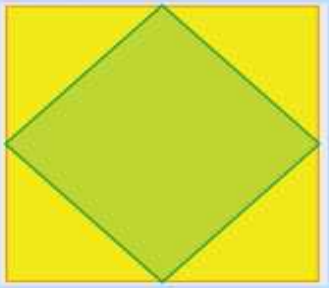
Have you seen multicoloured disc spins on a board?
We have to learn the situations when the Probability is interpreted geometrically. We can see the examples given below.
If we put a dot in the figure with out looking, what is the probability that it is inside the shaded region?
For that we have to find how much part is the area of the shaded region to that of total area.



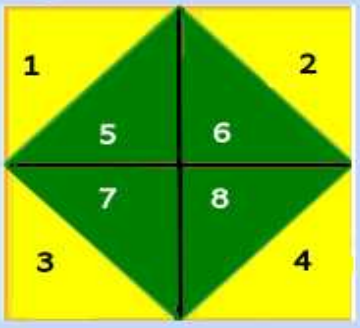
WORKSHEET FOR 1st October SEPTEMBER 2020

In each picture below, the explantion of the green part is given. Calculate in each, the probability of putting a dot, without looking, to be within the green part.

1. *A square got by joining the mid points of a bigger square.*



If we join the diagonals of green square, we get 8 equal triangles. That is the green square is the half of outer square.



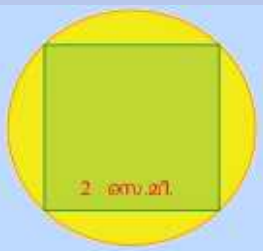
∴ Probability of the dot to be within the green square

$$= \frac{\text{Number of equal triangles in the green square}}{\text{Total number of equal triangles}}$$

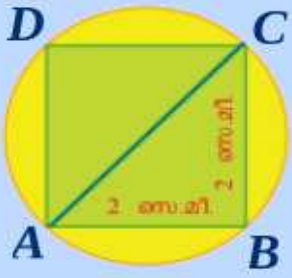
$$= \frac{4}{8}$$

$$= \frac{1}{2}$$

2. A square with all the vertices on a circle.



Draw the diagonal AC of the square.
AC is again the diameter of the circle.



Diagonal $AC = 2\sqrt{2}$

(Pythagoras theorem / Angles are 45^o, 45^o and 90^o)

$\therefore$ Radius $= \frac{2\sqrt{2}}{2} = \sqrt{2}$

Area of circle $= \pi r^2 = \pi \times \sqrt{2} \times \sqrt{2}$

$= \pi \times 2 = 2\pi \ cm^2$

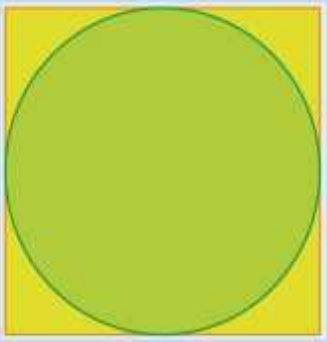
Area of square $= 2 \times 2 = 4 \ cm^2$

$\therefore$ Probability of the dot to be within the square

$= \frac{\text{Area of square}}{\text{Area of circle}}$

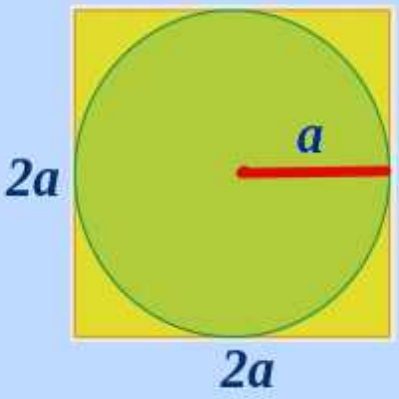
$= \frac{4}{2\pi} = \frac{2}{\pi}$

3. Circle exactly fitting inside a square.



Let, the length of the side of the square be 2a.

Then the radius of the circle = a



$$\text{Area of the square} = 2a \times 2a = 4a^2$$

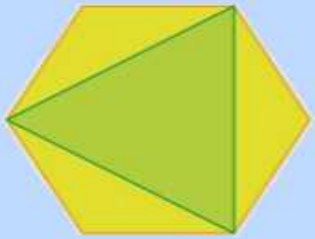
$$\text{Area of the circle} = \pi r^2 = \pi a^2$$

$\therefore$ *Probability of the dot to be with in the circle*

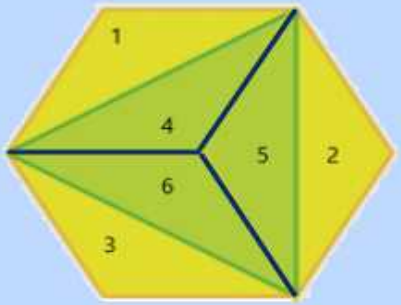
$$= \frac{\text{Area of the circle}}{\text{Area of the square}}$$

$$= \frac{\pi a^2}{4a^2} = \frac{\pi}{4}$$

4. *A triangle obtained by joining the alternate vertices of a regular hexagon.*



If we draw the angular bisectors of the green triangle, we get 6 equal triangles. That is the green triangle is half of regular hexagon.



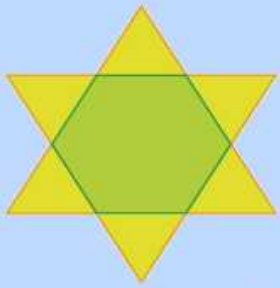
$\therefore$ *Probability of the dot to be within the green triangle*

$$= \frac{\text{Number of equal triangles in the green triangle}}{\text{Number of equal triangles in the hexagon}}$$

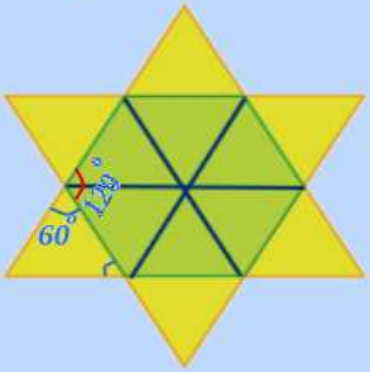
$$= \frac{3}{6}$$

$$= \frac{1}{2}$$

5. *A regular hexagon formed by two overlapping equilateral triangles.*



If we draw the diagonals of the regular hexagon, we get 12 equal triangles.



We know that the inner and outer angles at each vertex of the regular hexagon are 120° and 60° respectively. That is, all the inner angles of each yellow triangle is 60°. That is all the triangles are equilateral.

∴ The probability of the dot to be within the regular hexagon

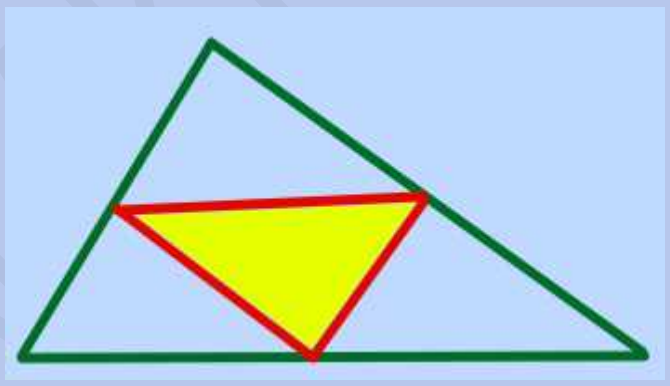
$$= \frac{\text{Number of equal triangles in the regular hexagon}}{\text{Total number of equal triangles}}$$

$$= \frac{6}{12} = \frac{1}{2}$$

WORKSHEET FOR 1st October SEPTEMBER 2020

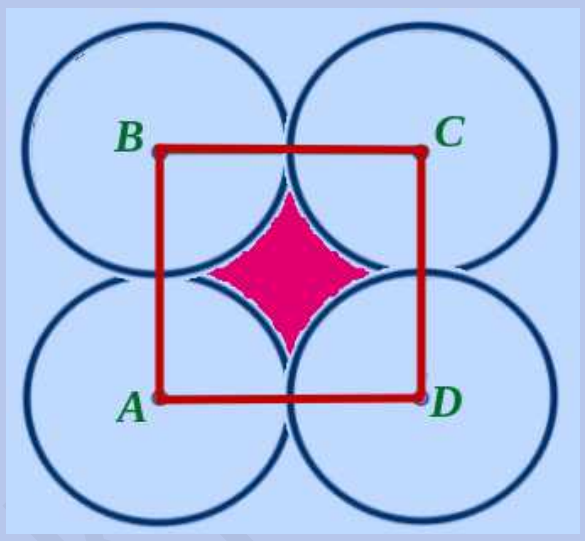
Questions:

1. **Each of the letters of the word MALAYALAM is written on seperate paper slips and put in a box. If a person takes a paper slip from the box without looking into the box, what is the probability that**
   - **a) It is the letter "A"**
   - **b) It is not the letter "A"**
2. **In the figure the shaded triangle is drawn by joining the midpoints of the sides of the large triangle. Calculate the probability of putting a dot, without looking, on larger triangle to be inside the shaded triangle.**



3. **Separate cards numbered as 10, 11, 12 ,13,14, 15, 16, 17 and 18 are made. One is asked to take a card from this. What is the probability that**
   - **a) It is an even number?**
   - **b) It is a prime number?**

4. In figure, A, B,C and D are the centres of each circle. The radius of each is 1 unit.



a) What is the length of the side of the square ABCD?

b) What is the area of the square ABCD?

c) What is the area of the shaded region?

d) If a dot is put at random inside the square ABCD, what is the probability that the dot to be within the shaded region?

5. There are 20 balls in a box. Some are yellow and the rest are blue. The probability of getting a blue ball from the box without looking to it is 0.35. Then

a) How many blue balls are there in the box?

b) How many yellow balls are there?

MATHEMATICS - STANDARD 10

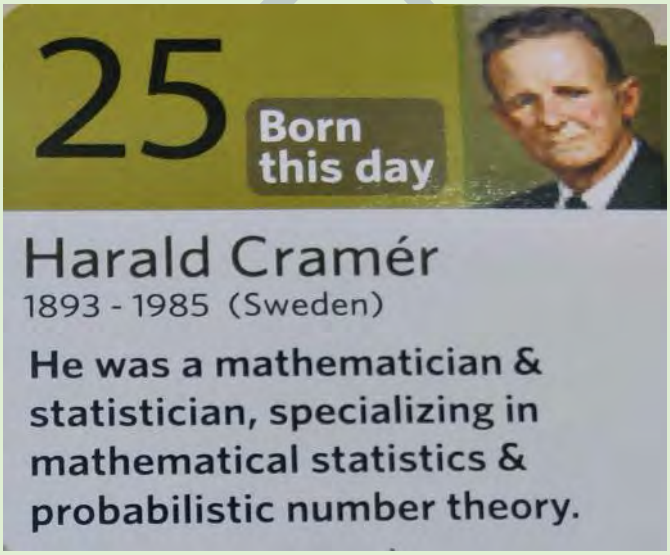
35

WORKSHEET FOR 25TH SEPTEMBER 2020

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

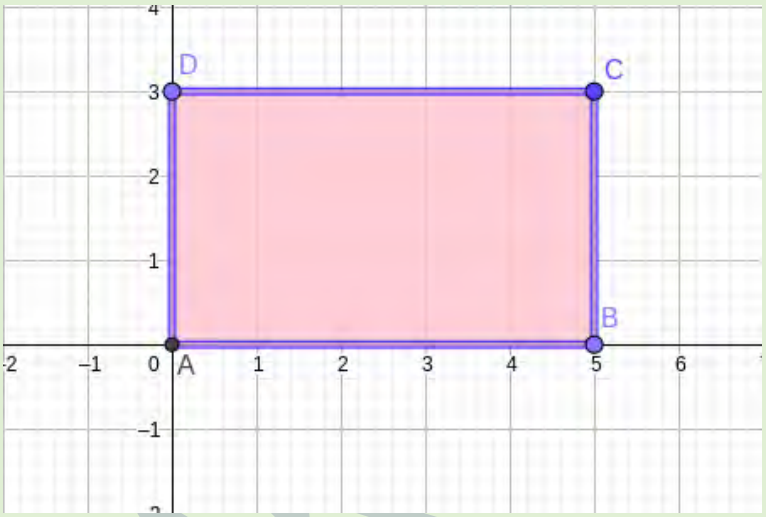
STUDENT SUPPORT MATERIAL for X Mathematics



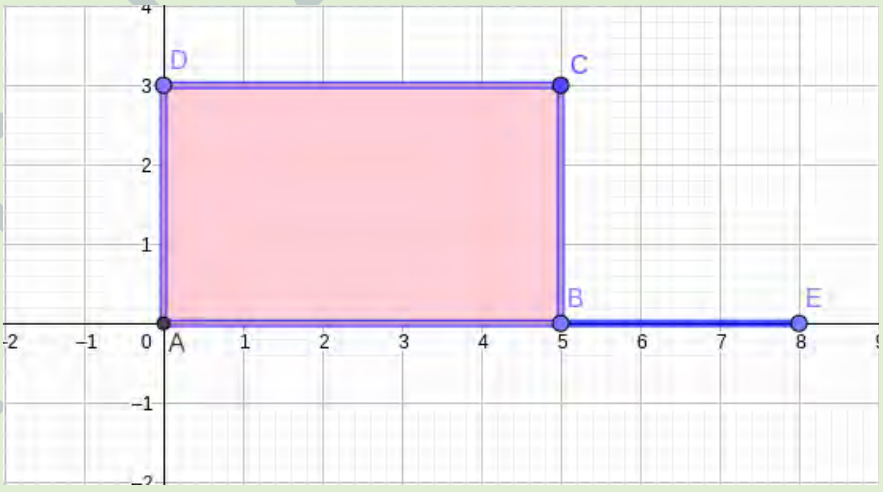
KITE VICTERS STD 10
Mathematics - Class- 35

Draw a square of area same as that of a rectangle.

Draw the rectangle ABCD with given dimensions.



Extend AB to E where BC = BE.

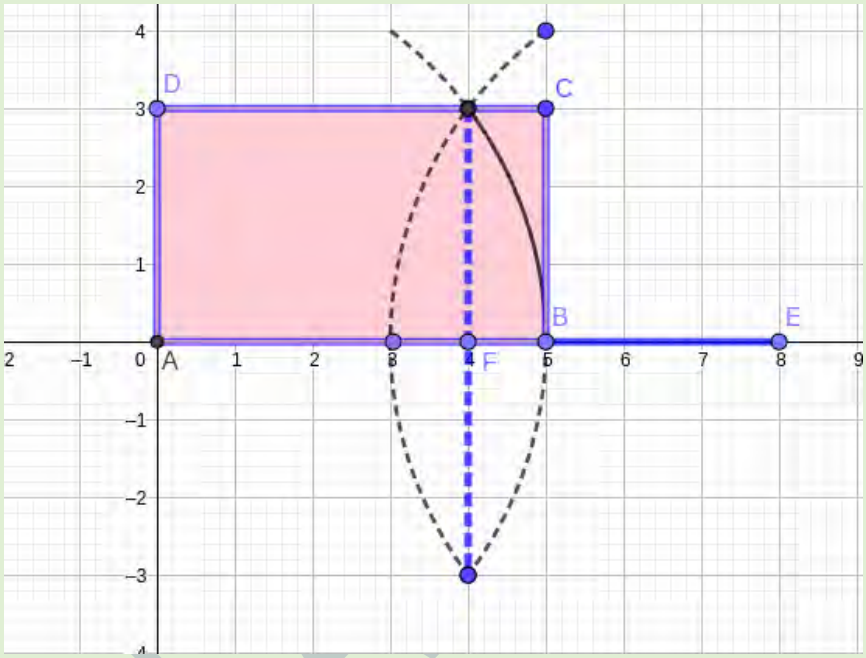


MATHEMATICS - STANDARD 10

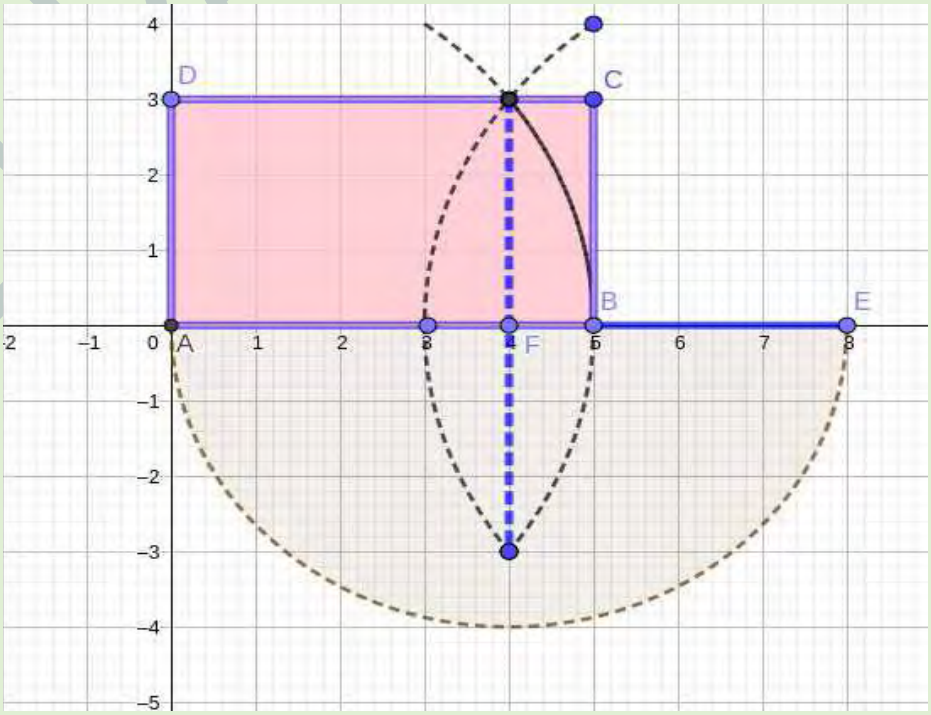
35

WORKSHEET FOR 25TH SEPTEMBER 2020

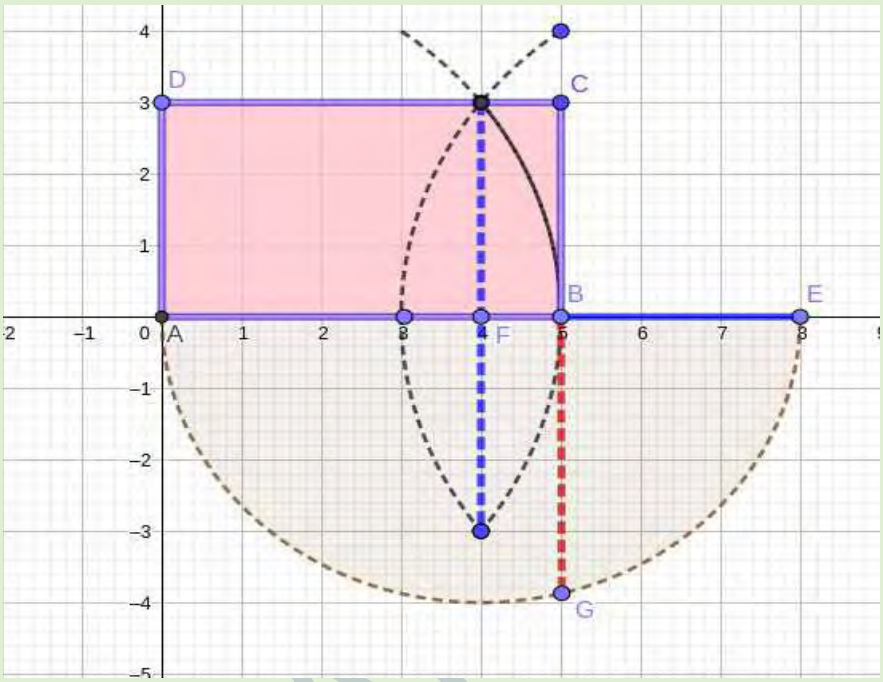
Draw two arcs from A and E and complete the perpendicular bisector of AE to get F as the midpoint of AE.



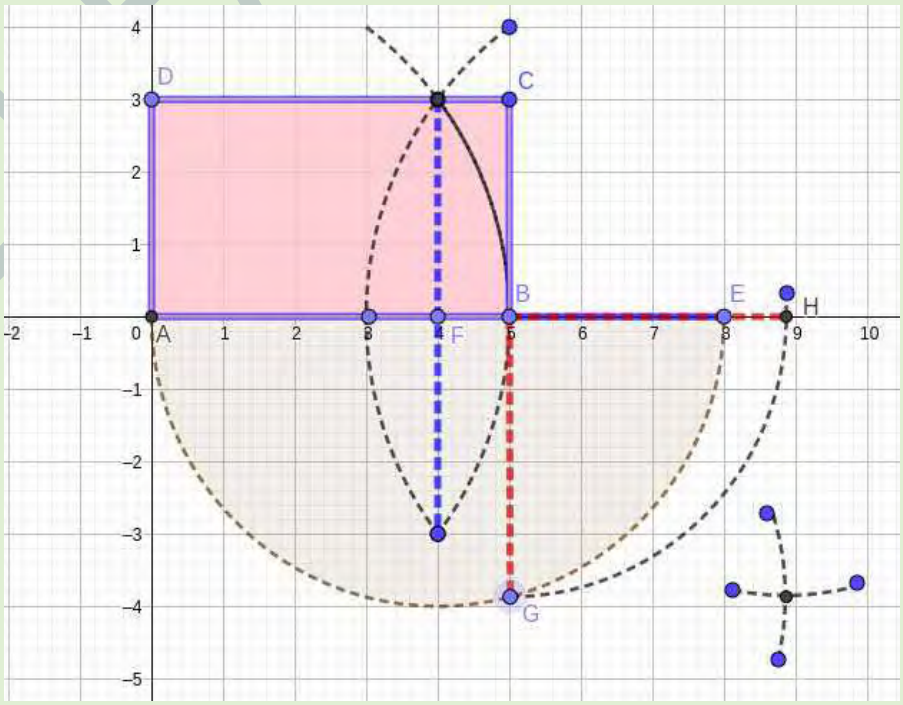
Draw a semicircle with AE as the diameter.



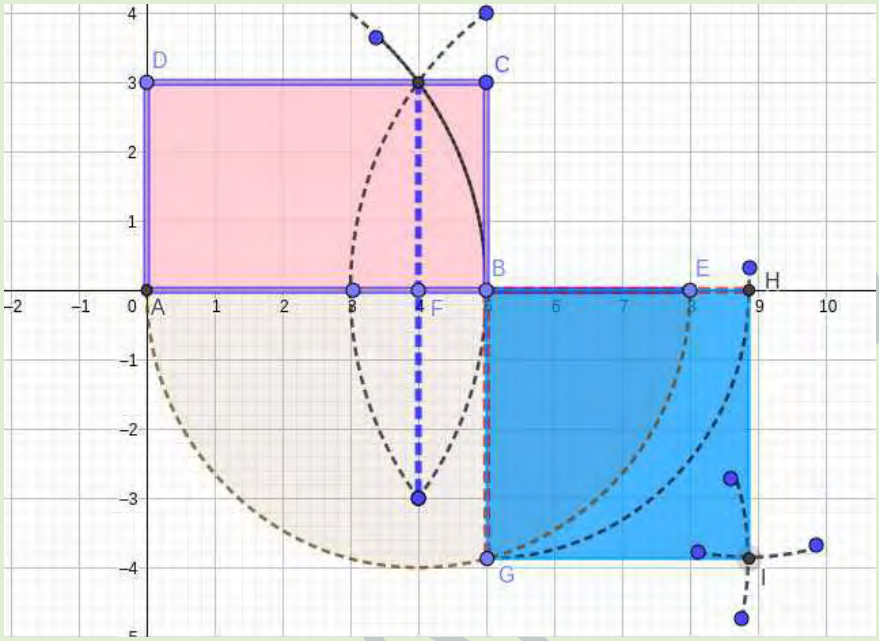
Extend CB to meet the semicircle at G where BG perpendicular to BE.



Extend BE to H such that BH=BG, then draw two arcs from H and G by taking the length of BG to cut at I.



Draw GI and HI to complete the square.



Questions:-

1. Draw lines of length $\sqrt{18}$cm, $\sqrt{14}$cm, $\sqrt{20}$cm in the same figure.
   a) What is the suitable diameter for semicircle?
   b) Draw a square of area 20 cm^2 in the same figure.

2. Draw a square of area 7cm^2 in three different ways.

   Hint:

   a) $7 \times 1 = 7$

   b) $4^2 - 3^2 = 7$

   c) $\sqrt{6^2 + 1} = 7$

   d) $\sqrt{5^2} + \sqrt{2^2} = 7$

3. Draw a square of area 13cm^2 in three different ways.

   Hint:

   a) 13 x 1 = 13

   b) $7^2 - 6^2 = 13$

   c) $\sqrt{12^2} + 1 = 13$

   d) $\sqrt{3^2} + \sqrt{2^2} = 13$

4. Draw an equilateral triangle of perimeter $3\sqrt{8}$ cm, a square of perimeter $4\sqrt{10}$cm and a circle of radius $\sqrt{6}$ cm.

Watch and Learn ...

Did you get the answers?
Let us see...

MATHEMATICS - STANDARD 10

34

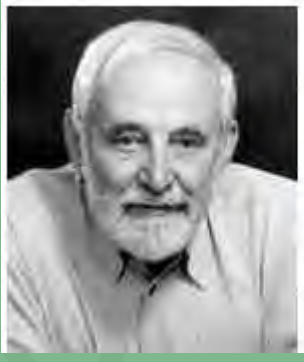
WORKSHEET FOR 24TH SEPTEMBER 2020

SAMAGRA SHIKSHA ABHIYAN
QUALITY EDUCATION FOR ALL

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics



Raoul Bott

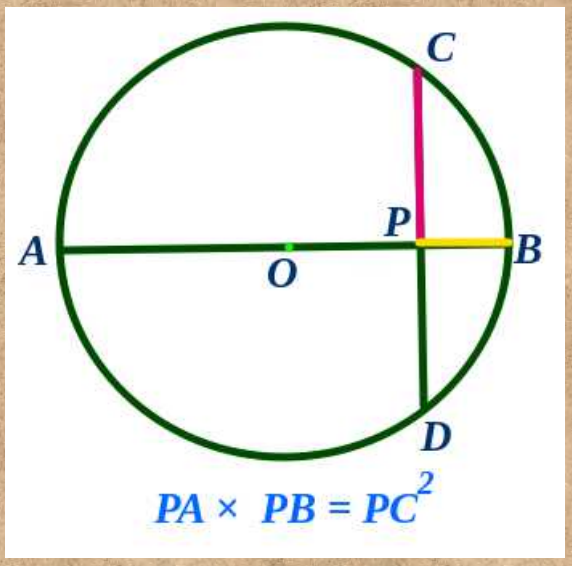
Born
24 September 1923
Budapest, Hungary

Raoul Bott was a Hungarian-born mathematician who made fundamental contributions to topology and differential geometry.

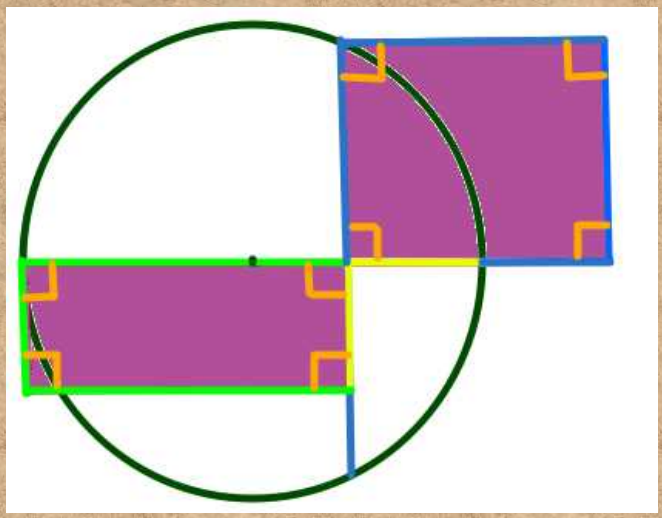
KITE VICTERS STD 10
Mathematics - Class - 34

WORKSHEET FOR 24TH SEPTEMBER 2020

The product of the parts into which a diameter of a circle is cut by a perpendicular chord, is equal to the square of half the chord.



The area of a rectangle formed by the parts of the diameter of a circle cut by a perpendicular chord is same as the area of the square formed by half of the chord.



Questions:

Q 1 The sides of a rectangle are 5 cm and 4 cm. Construct a square of same area and find the length of one side.

WORKSHEET FOR 24TH SEPTEMBER 2020

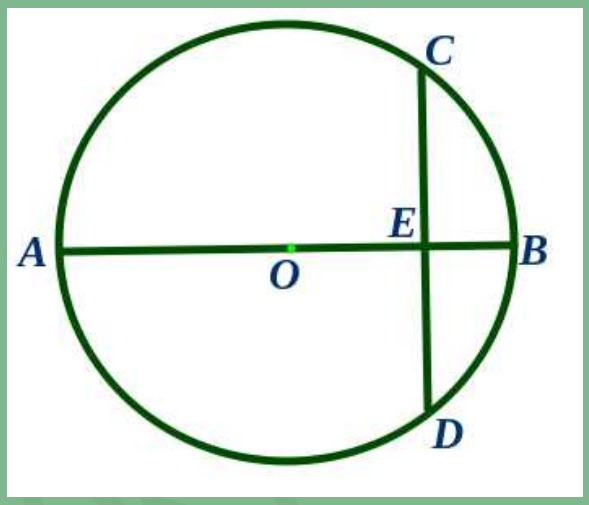
Q 2 In figure, O is the centre and AB is a diameter. Also, the point E bisects the chord DC. If CE = 8 cm and EB = 4 cm,

i) DE = _____ cm.

ii) AE = _____ cm.

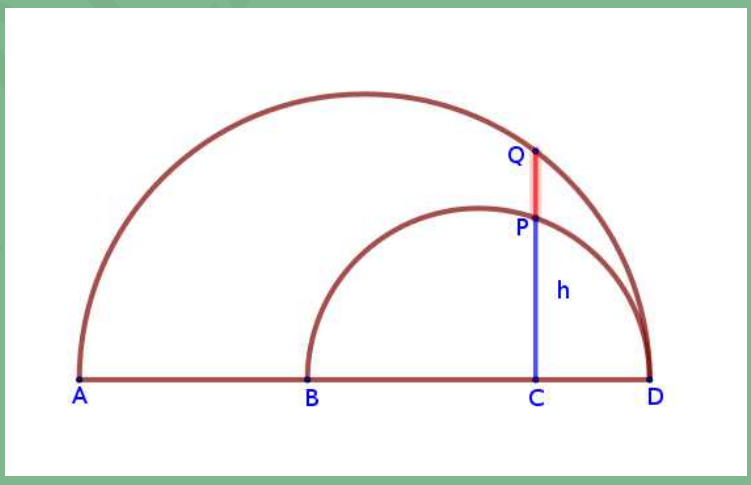
iii) AB = _____ cm.

iv) What is the radius of the circle?



Q 3 Draw a square of side √18 cm.

Q 4 In the figure, AD=10 cm, BD=6 cm and CD=2 cm. Find PQ.



For widened thoughts....

1. When a rectangle of length 8 cm is turned into a square of same area, one side of the square is obtained as 4 cm. Then what was the breadth of the given rectangle?

WORKSHEET FOR 24TH SEPTEMBER 2020

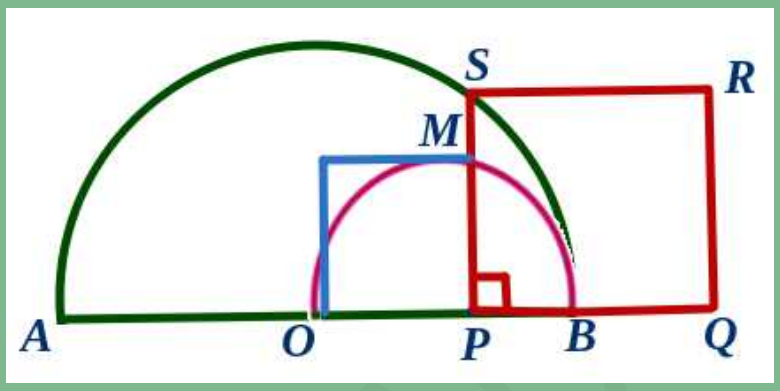
2. In figure, O is the centre of the semi circle whose radius is 5 cm.

If PB = 2 cm,

i) Find the length of PA.

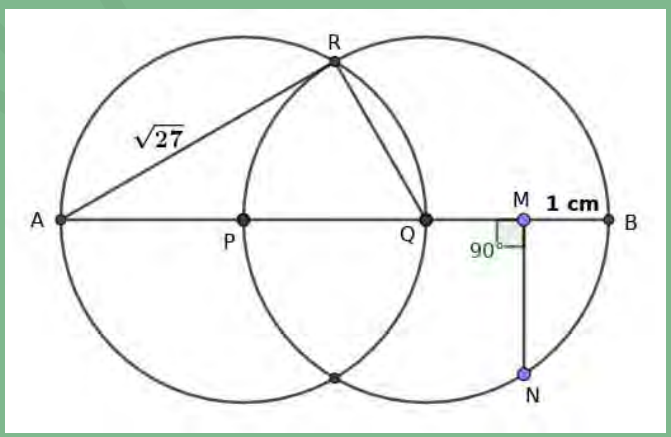
ii) What is the area of the square PQRS?

iii) Find the area of the square whose one side is PM.



iv) What is the ratio between the areas of these two squares?

3. In the figure P and Q are the centres of the circles. AR= $\sqrt{27}$ cm and MB = 1 cm. Calculate the area of the square with side MN.



Did you get the answers?
Let us see...

MATHEMATICS - STANDARD 10

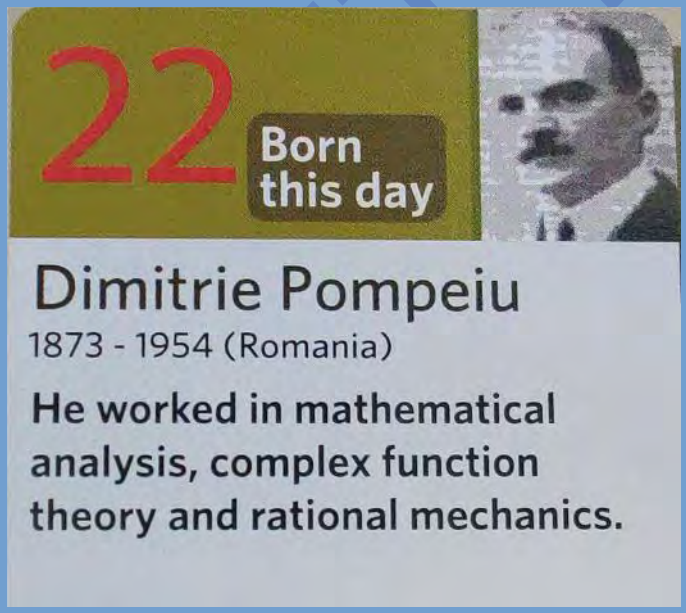
33

WORKSHEET FOR 22TH SEPTEMBER 2020

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics

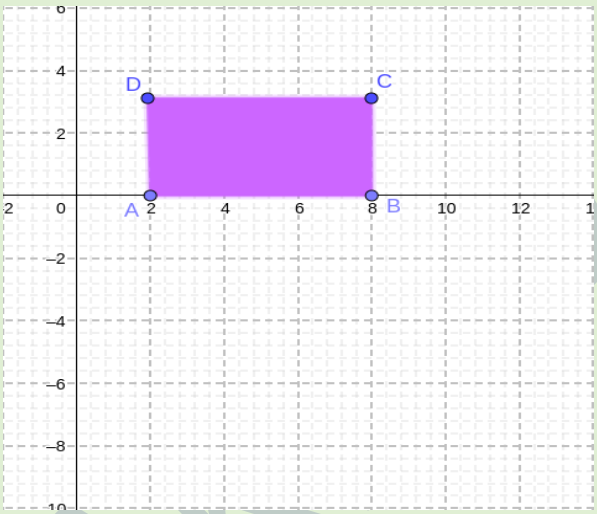


Watch and Learn

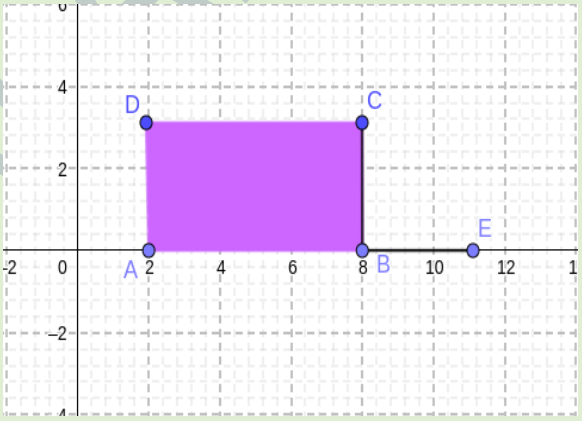
Just Click on this

Draw a rectangle of length 6cm and width 3cm.Then draw another rectangle of the same area with one side 7cm.

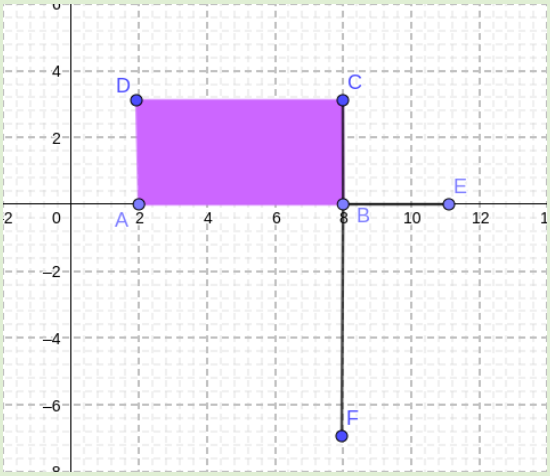
- Draw rectangle **ABCD** with given dimensions.



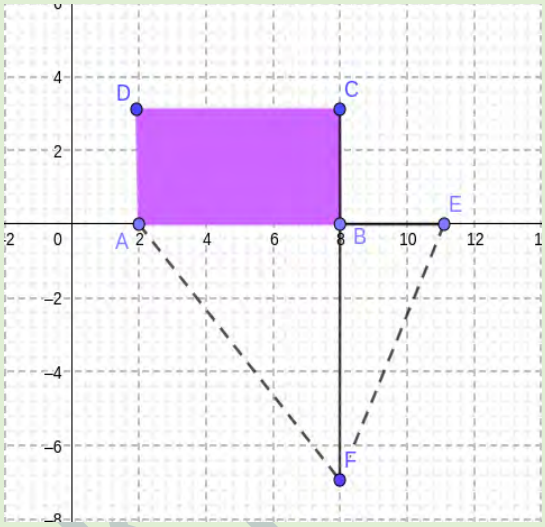
- Extend **AB** to **E** where **BE = BC**



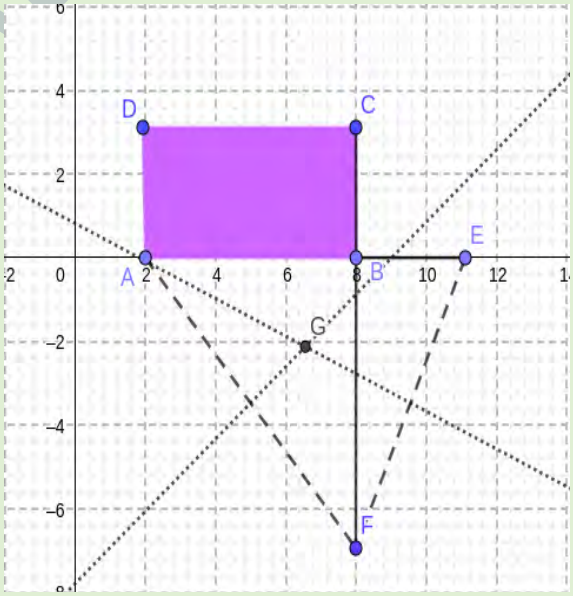
- Extend **CB** to **F** where **BF** is equal to the length of required rectangle.



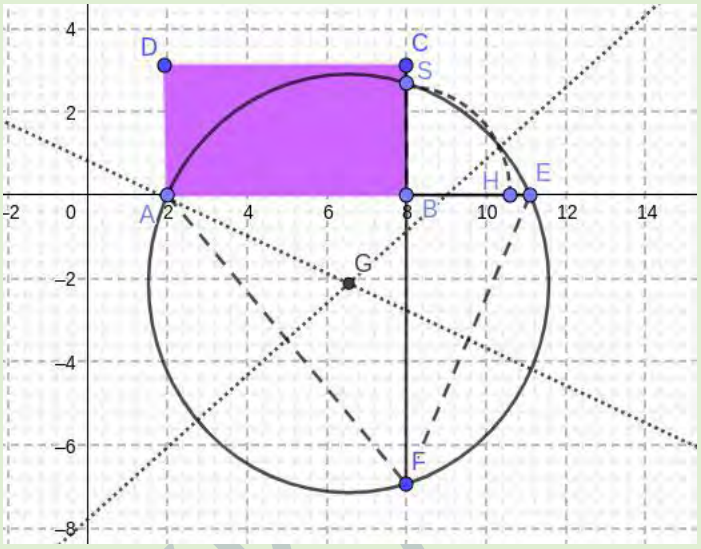
- Join **AF** and **EF** to complete the Δ**AFE.**



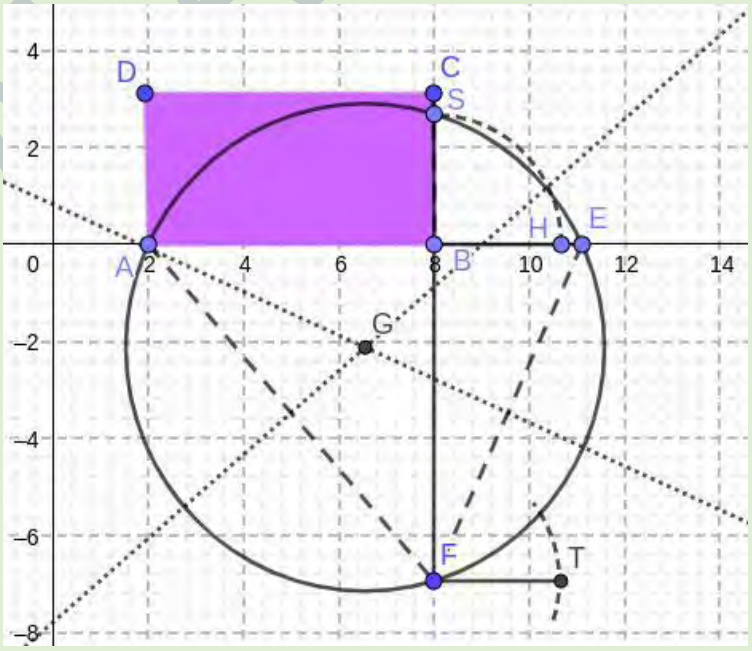
- Draw the perpendicular bisectors of **AF** and **EF** and mark the intersecting point as **G.**



- Draw the circumcircle of Δ**AFE** with **G** as centre, then mark the intersecting point **S** on **BC** and mark **H** on **BE** where **BH = BS.**



- Draw **FT** perpendicular to **FB** where **FT = BH.**

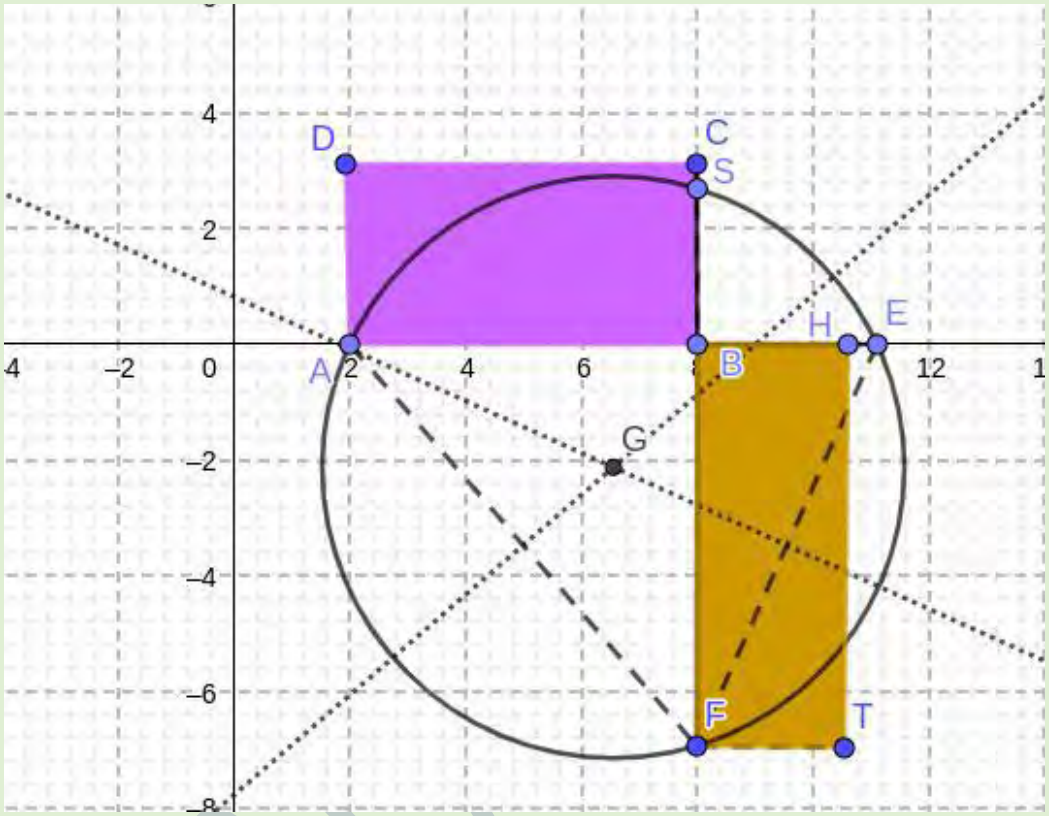


MATHEMATICS - STANDARD 10

33

WORKSHEET FOR 22TH SEPTEMBER 2020

- Complete the rectangle **BHTF.**



- **Since BS x BF=AB x BE , the areas of two rectangles are same.**

Do you want to see this in detailed steps →

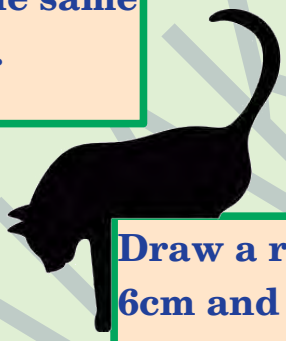
MATHEMATICS - STANDARD 10

33

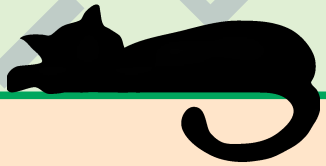
WORKSHEET FOR 22TH SEPTEMBER 2020

* Just watch what happens to the width of the second rectangle when the length increases

Draw a rectangle of length 6cm and width 4cm. Draw another rectangle of the same area with one side 8cm.



Draw a rectangle of length 6cm and width 3cm. Draw another rectangle of the same area with one side 7cm.



Draw a rectangle of length 6.5cm and width 4cm. Draw another rectangle of the same area with one side 8cm.

Watch and Learn ...

MATHEMATICS - STANDARD 10

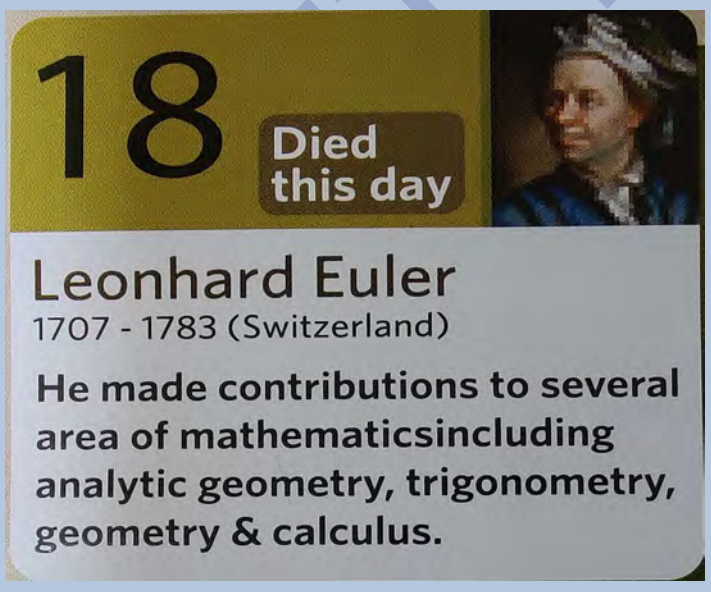
32

WORKSHEET FOR 18TH SEPTEMBER 2020

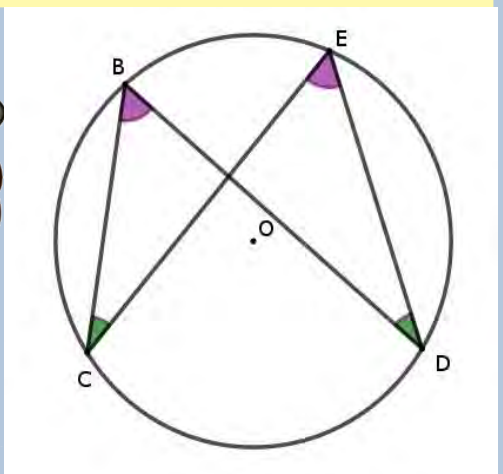
A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics



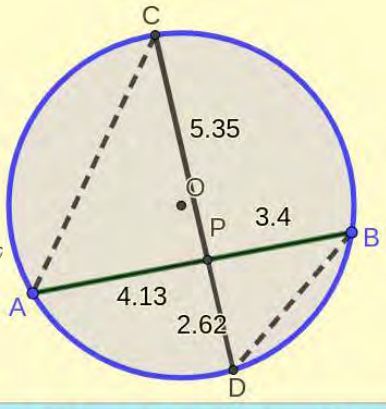
Do You Remember? ∠B = ∠E , ∠C = ∠D



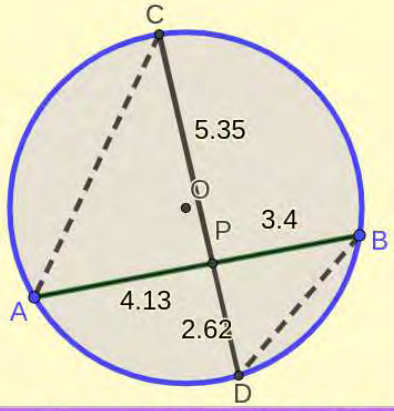
MATHEMATICS - STANDARD 10

32

WORKSHEET FOR 18TH SEPTEMBER 2020

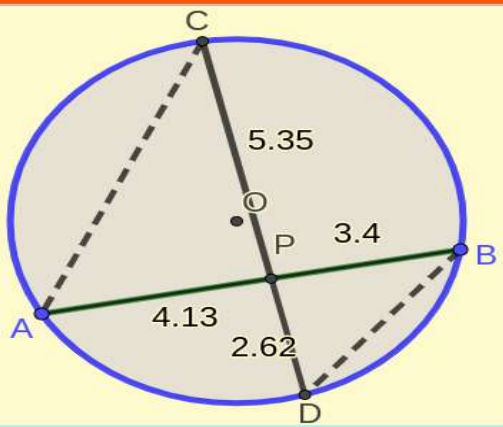


PA x PB = 4.13×3.4 = 14.04



PC x PD = 5.35×2.62 = 14.04

In a circle if two chords AB,CD intersects at P...then PA x PB = PC x PD



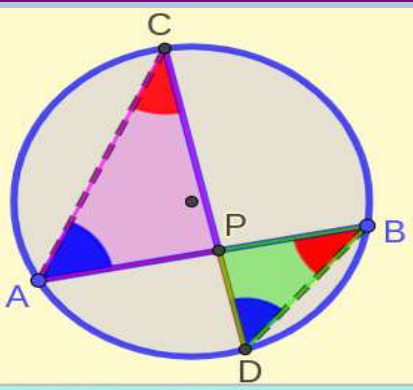
PA x PB = 4.13×3.4 = 14.04

PC x PD = 5.35×2.62 = 14.04

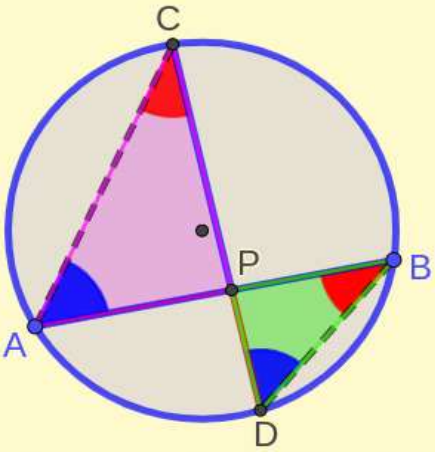
MATHEMATICS - STANDARD 10

32

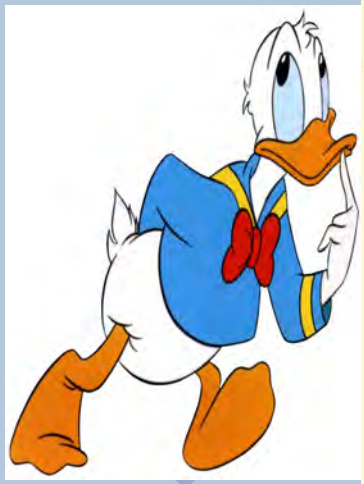
WORKSHEET FOR 18TH SEPTEMBER 2020



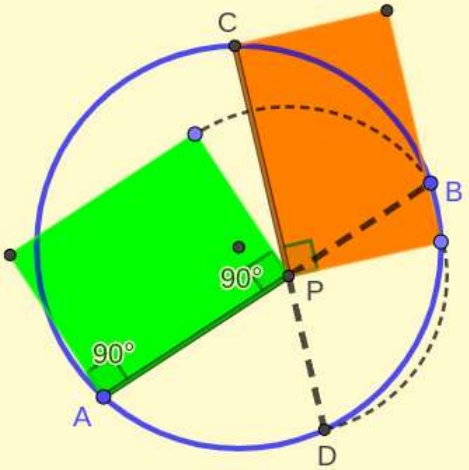
In the fig ∠A = ∠D
also ∠C = ∠B
(Angles formed in the same arc)
So ΔPAC~ΔPDB



∴ PA / PD = PC / PB ∴ PA × PB = PC × PD



If two chords intersects within a circle, then the rectangles formed by the parts of the same chord have equal area.



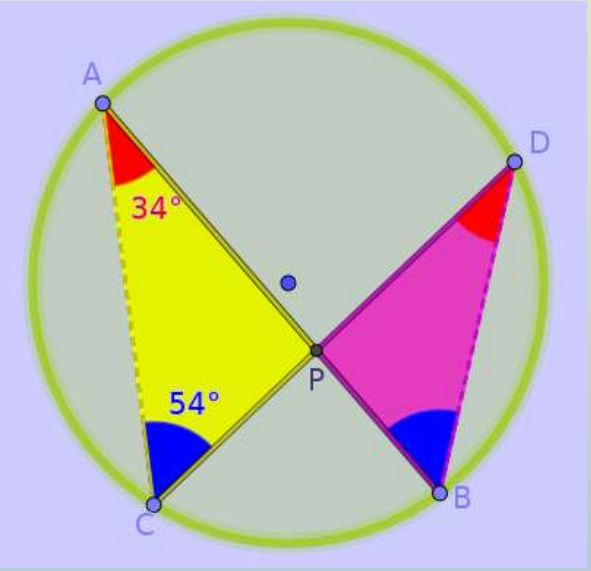
Q 1. In the fig $\angle A = 34^o, \angle C = 54^o$
Find

a) $\angle D$ = _____

b) $\angle B$ = _____

c) Prove that $\triangle PAC$ and $\triangle PDB$ are similar.

d) If PA = 8 cm, PD = 6 cm, PC = 4 cm then find AB.



Q 2. In the fig $\angle PDB = 65^o$ $\angle CAD = 50^o$, The chords AB and CD meets at a point outside the circle. Then find

a) $\angle CAB$

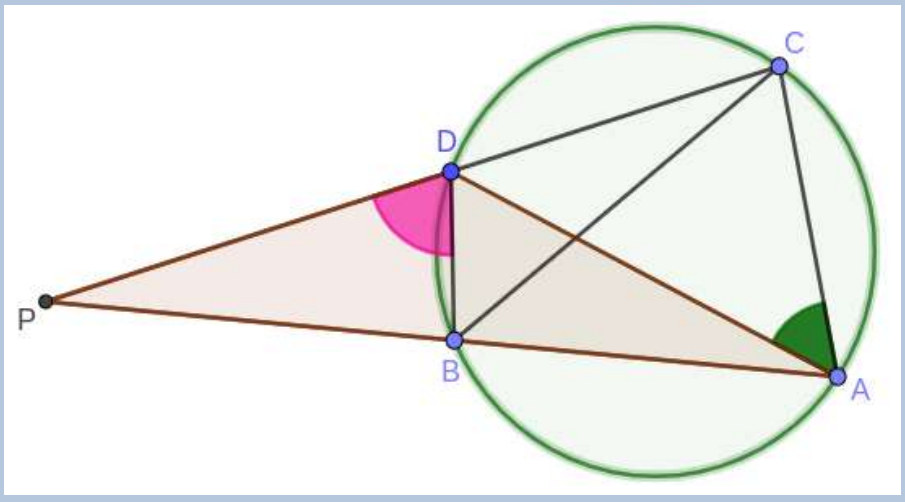
b) $\angle DAB$

c) $\angle DCB$

d) Write the name of the triangle similar to $\triangle PDA$

e) so fill in the blanks

PD/.... = PC/...

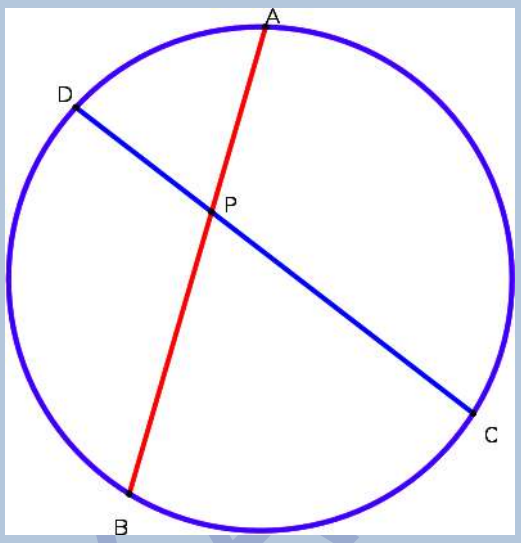


MATHEMATICS - STANDARD 10

32

WORKSHEET FOR 18TH SEPTEMBER 2020

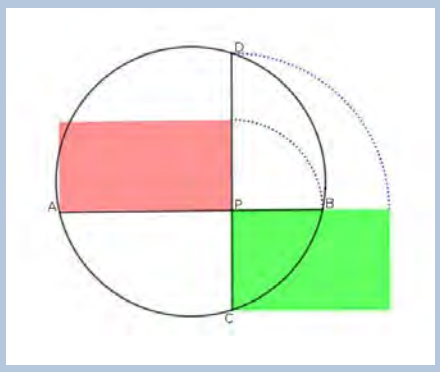
Q 3. In a circle, if cords AB and CD intersect at P inside the circle, then PA x PB = PC x PD.
Use this property to complete the table below.



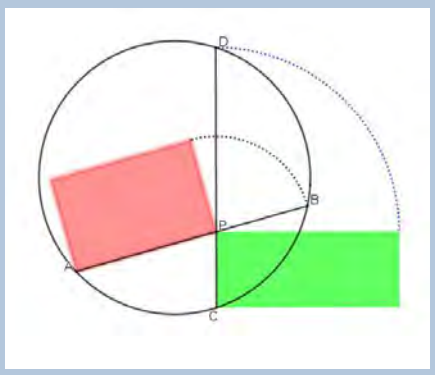
PA	PB	PC	PD	AB	CD
6		8		10	
	3		2		11
4		10		9	
	9		3		15

Q4. In the figure chords AB, CD, XY intersect at the point P.
If AP = 9cm, AB =13cm and PD = 12cm find CD.
If PX = PY then calculate the length of XY.

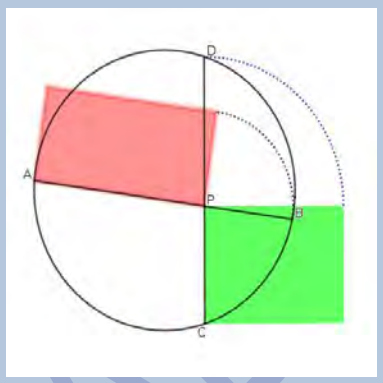
Q5. Compare the areas of the Red and Green Rectangles. Write your findings.



i) PA = 4cm PB=3cm
PC = 6cm PD=2cm



ii) PA = 12cm PB=8cm
PC = 24cm PD=4cm



iii) PA = 18cm PB=2cm
PC = 6cm PD=6cm

Learn through watching.....

Check Your Answers?

MATHEMATICS - STANDARD 10

WORKSHEET FOR 17TH SEPTEMBER 2020

SAMAGRA SHIKSHA ABHIYAN
QUALITY EDUCATION FOR ALL

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics

Bernhard Riemann

German mathematician

Date of Birth: 17-Sep-1826

Place of Birth: Jameln, Lower Saxony, Germany

Profession: professor, physicist, mathematician, university teacher

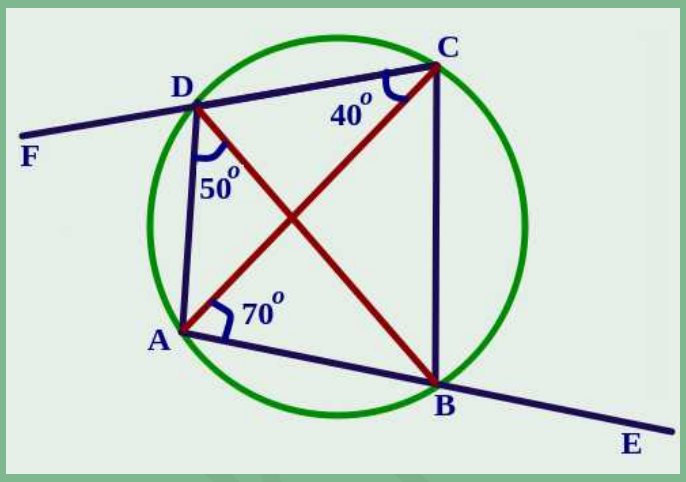
KITE VICTERS STD 10
Mathematics - Class - 31

MATHEMATICS - STANDARD 10

WORKSHEET FOR 17TH SEPTEMBER 2020

Questions:

1. In figure, given that ∠ADB = 50^o, ∠BAC = 70^o and ∠DCA = 40^o. Then,



i) ∠ACB = _____

ii) ∠CDB = _____

iii) ∠CBE = _____

iv) ∠ABC = _____

v) ∠DBA = _____

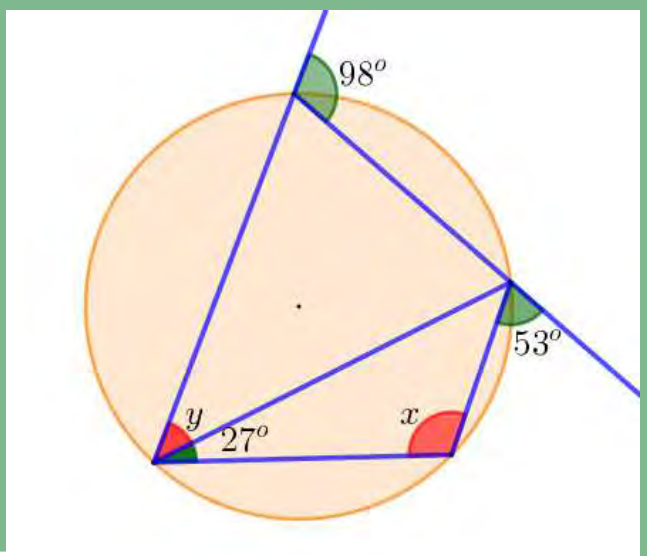
vi) ∠DBC = _____

vii) ∠DAC = _____

viii) ∠DBE = _____

ix) ∠ADF = _____

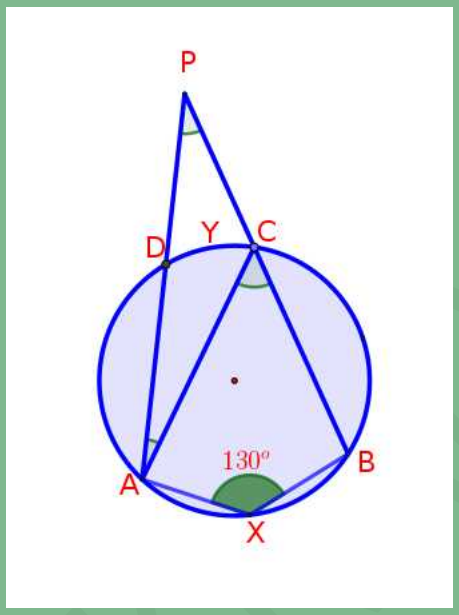
2. Find the values of *x* and *y* in the following figure.



MATHEMATICS - STANDARD 10

WORKSHEET FOR 17TH SEPTEMBER 2020

3. In the figure, ∠ AXB =130˚ and central angle of arc CYD is 30˚. Then,



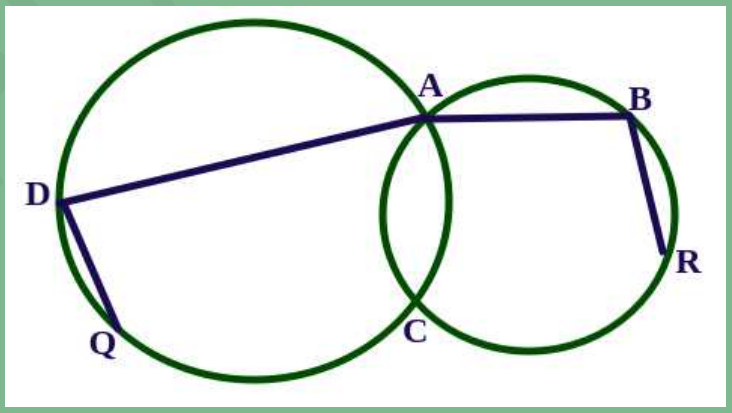
i) ∠ CAD = …….

ii) ∠ ACB = …….

iii) ∠ ACP = …….

iv) ∠ APC = …….

4. In figure, two circles intersect at A and C and ∠ADQ + ∠ABR = 180°. Then prove that Q, C and R are on a straight line.



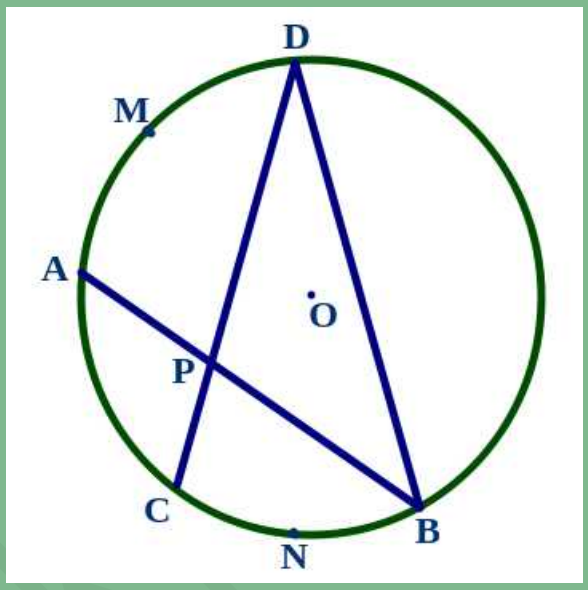
MATHEMATICS - STANDARD 10

WORKSHEET FOR 17TH SEPTEMBER 2020

5. 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. Then,

i) What is the measure of the central angle of the arc CNB?

ii) Find the measures of ∠CDB, ∠ABD and ∠APD.



Did you get the answers?
Let us see...

MATHEMATICS - STANDARD 10

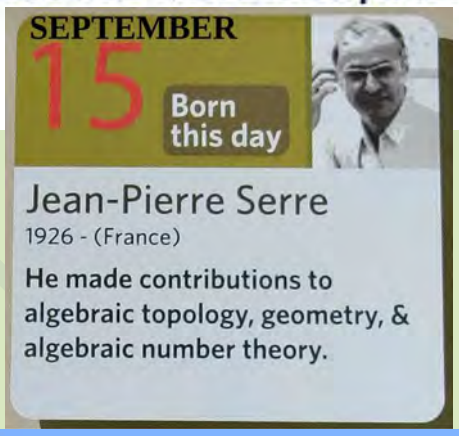
WORKSHEET FOR 15TH SEPTEMBER 2020

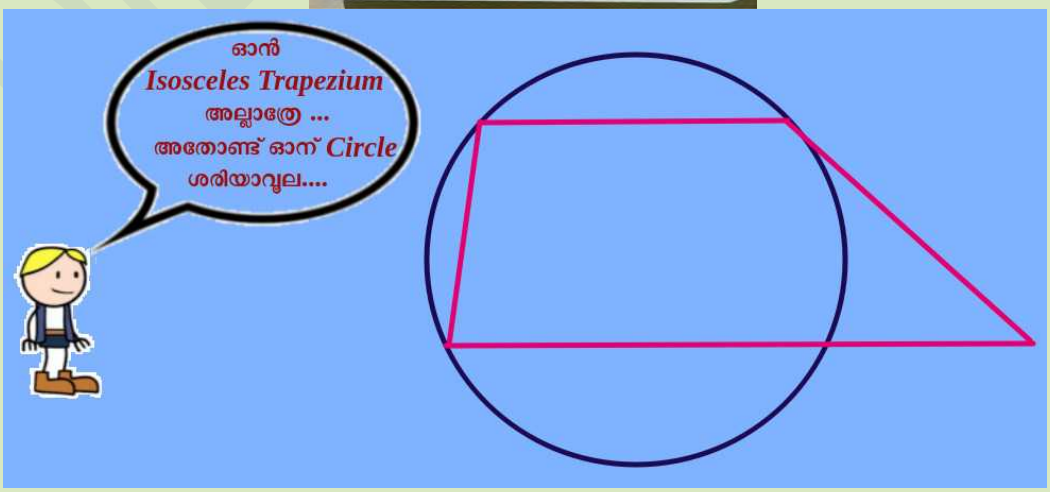
A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

30

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

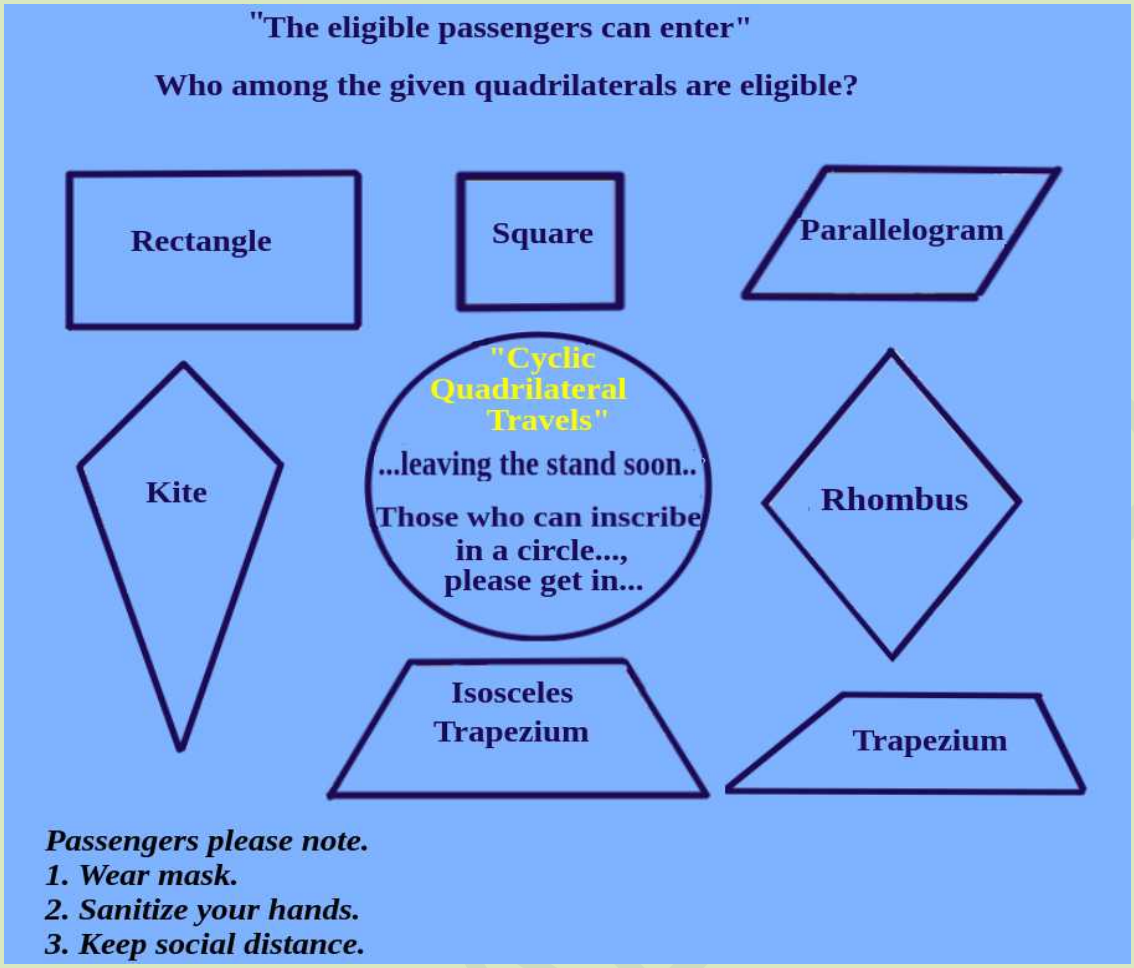
STUDENT SUPPORT MATERIAL for X Mathematics





MATHEMATICS - STANDARD 10

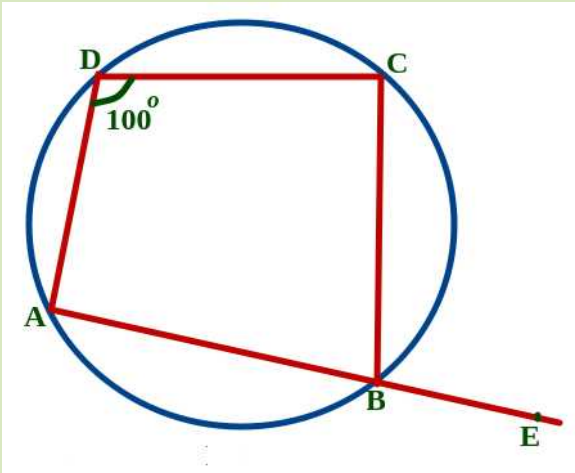
WORKSHEET FOR 15TH SEPTEMBER 2020



Activity

In figure, ABCD is a cyclic quadrilateral.

AB is extended to E. If $\angle D = 100^o$,



i) $\angle ABC + \angle D =$ _____

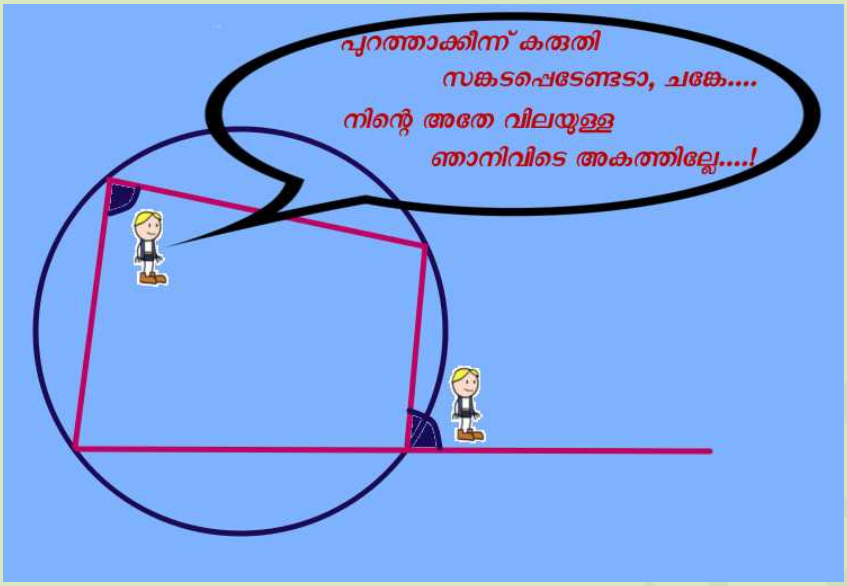
ii) $\angle ABC =$ _____

iii) $\angle ABC + \angle CBE =$ _____

iv) $\angle CBE =$ _____

MATHEMATICS - STANDARD 10

WORKSHEET FOR 15TH SEPTEMBER 2020

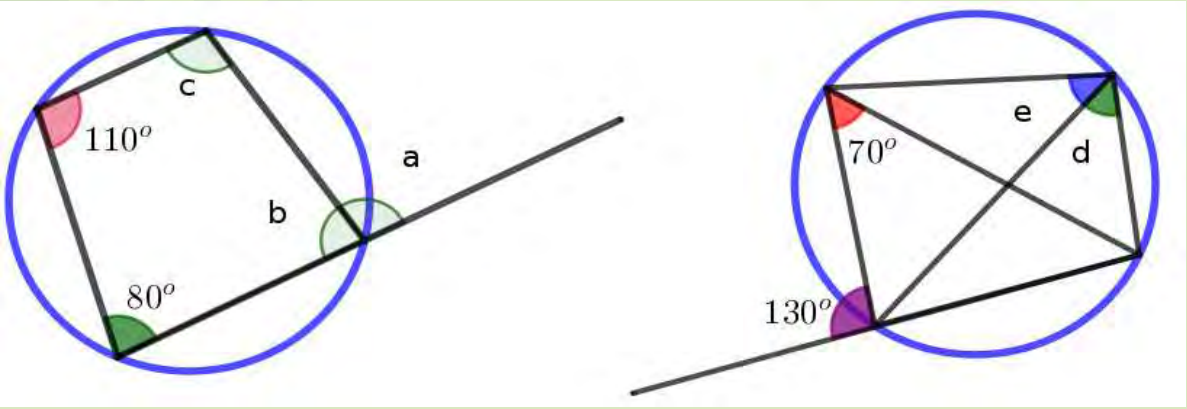


For a cyclic quadrilateral, the measure of outer angle at any vertex will be same as that of the inner angle at the opposite vertex.

Watch and learn.....

Questions:

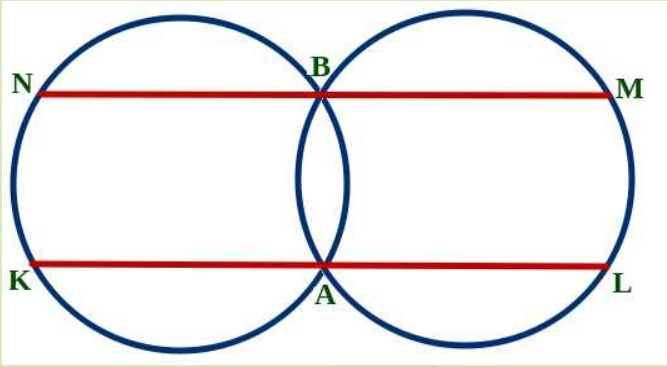
1. In the figure, find the angles a, b, c, d and e.



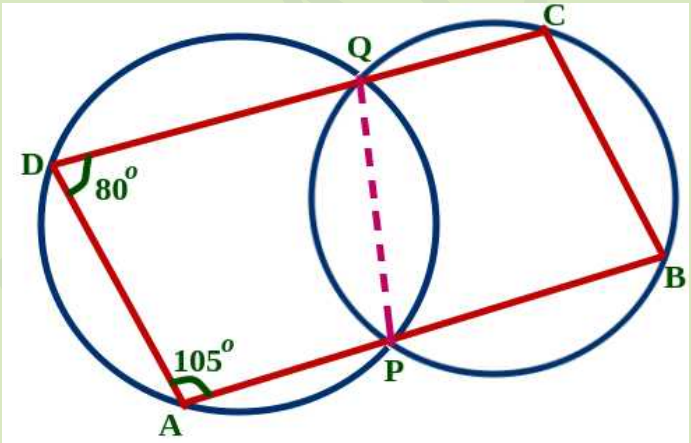
MATHEMATICS - STANDARD 10

WORKSHEET FOR 15TH SEPTEMBER 2020

2. In figure, two circles intersect at A and B. The lines KAL and NBM are parallel. Prove that KLMN is a parallelogram.



3. In figure, two circles intersect at P and Q. P is a point on the side AB and Q is a point on the side CD of the quadrilateral ABCD.



If $\angle A = 105^o$ and $\angle D = 80^o$, then

i) $\angle APQ$ = _____

ii) $\angle DQP$ = _____

iii) $\angle QPB$ = _____

iv) $\angle PQC$ = _____

v) Is quadrilateral ABCD cyclic?

4. In quadrilateral PQRS, $\angle P$, $\angle Q$, $\angle R$ and $\angle S$ are in the ratio 1:2:4:3. Prove that PQRS is a cyclic quadrilateral.

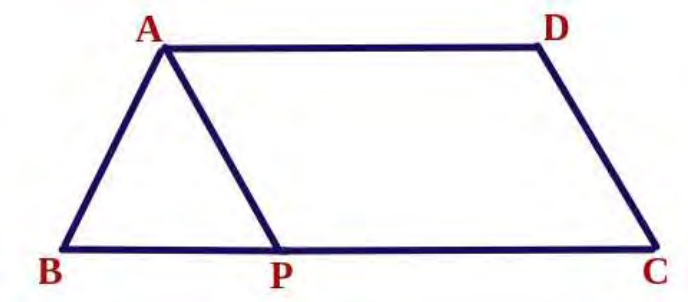
MATHEMATICS - STANDARD 10

WORKSHEET FOR 15TH SEPTEMBER 2020

For widened thoughts....

5.

i) In figure, given that AB = AP and PCDA is a parallelogram. Then prove that ABCD is a cyclic quadrilateral.



ii) If AB is not equal to AP will ABCD be cyclic? Why?

Did you get the answers? Let us see...	

WORKSHEET FOR 14TH SEPTEMBER 2020

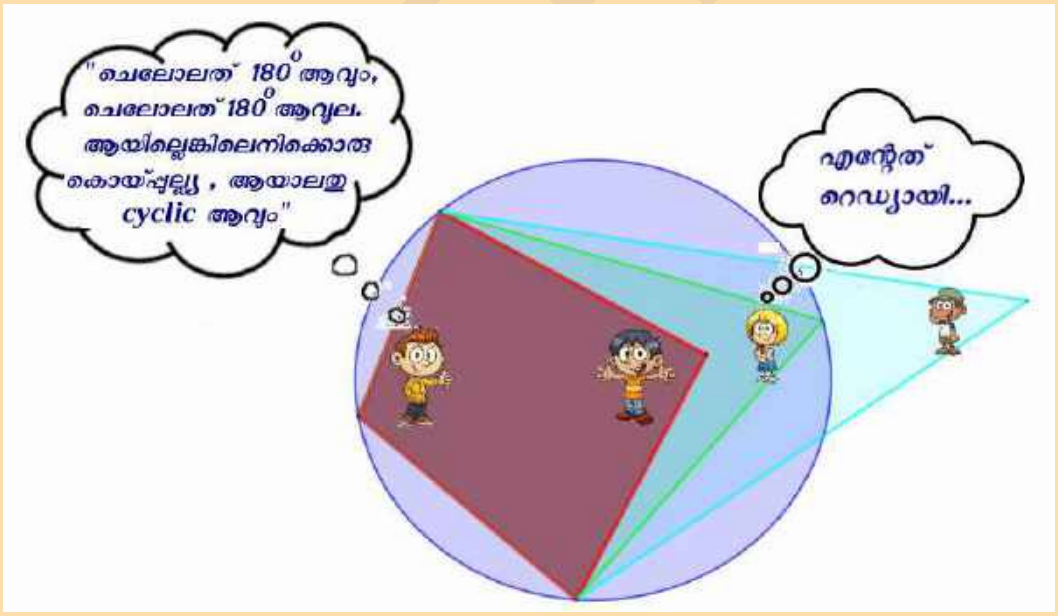
SAMAGRA SHIKSHA ABHIYAN
QUALITY EDUCATION FOR ALL

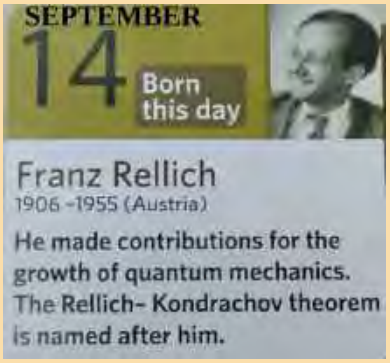
DIET

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics



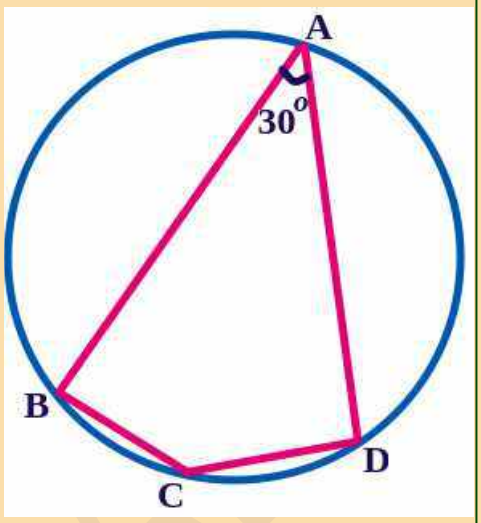


MATHEMATICS - STANDARD 10

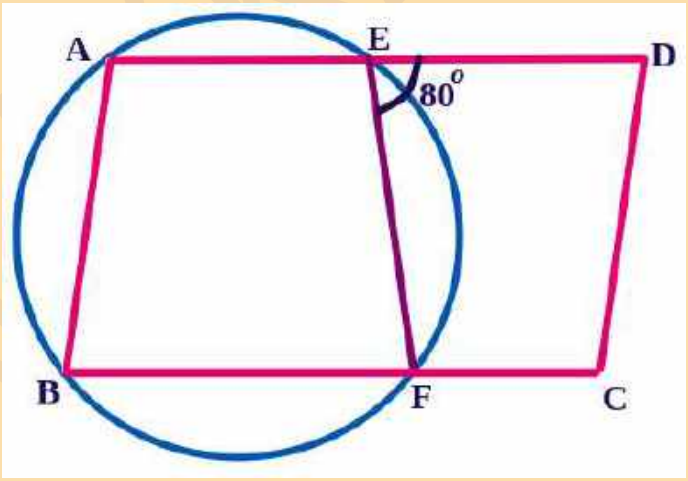
WORKSHEET FOR 14TH SEPTEMBER 2020

Questions:

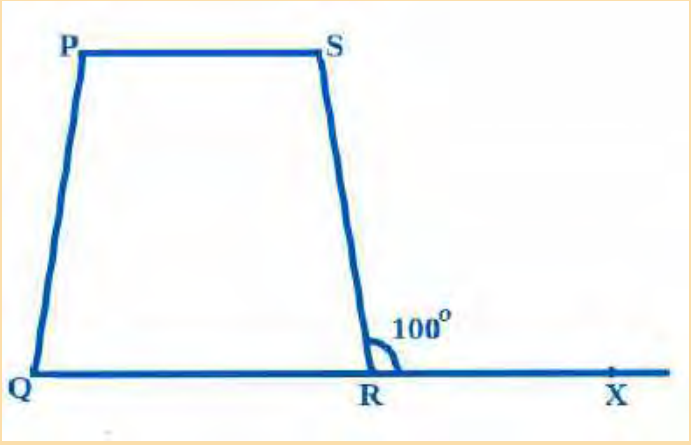
1. **In the figure, $\angle A = 30^o$. Find $\angle C$.**



2. **ABCD is a parallelogram. A, B, E and F are the points on a circle. $\angle DEF = 80^o$. Find out the angles of the quadrilateral AEFB.**



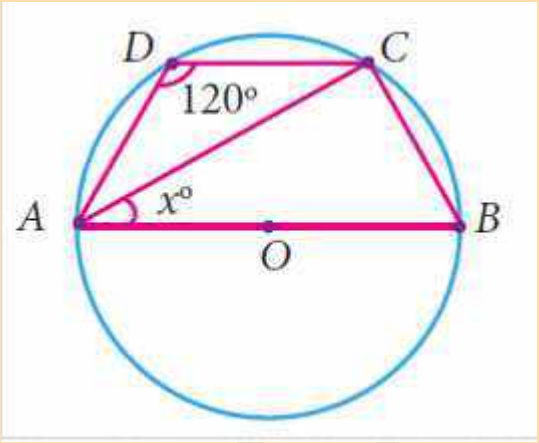
3. **PQRS is a cyclic quadrilateral. QR is extended upto X. If $\angle SRX = 100^o$ and $\angle RPS = 50^o$ then find $\angle RPQ$.**



MATHEMATICS - STANDARD 10

WORKSHEET FOR 14TH SEPTEMBER 2020

4. Find the value of x in the given figure.



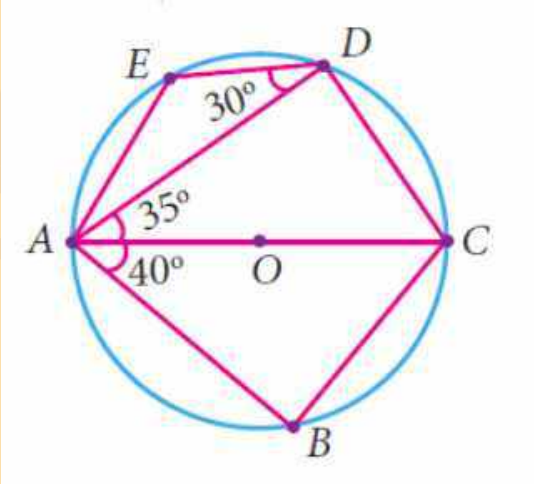
5. In the given figure, AC is the diameter of the circle with centre O.

If ∠ADE = 30° , ∠DAC = 35° and ∠CAB = 40°, then

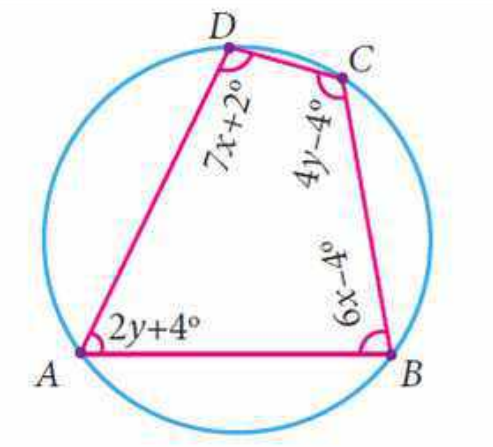
(i) ∠ACD = _____.

(ii) ∠ACB = _____.

(iii) ∠DAE = _____.



6. Find all the angles of the given cyclic quadrilateral ABCD in the figure.



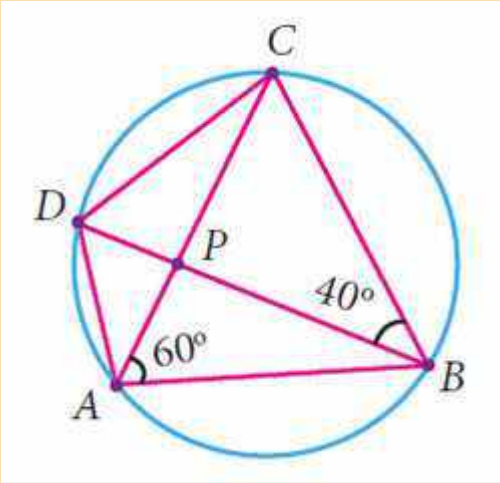
MATHEMATICS - STANDARD 10

WORKSHEET FOR 14TH SEPTEMBER 2020

7. In the given figure, ABCD is a cyclic quadrilateral whose diagonals intersect at P. If ∠DBC = 40° and ∠BAC = 60° then find

(i) ∠CAD

(ii) ∠BCD



Check your answers here....
(Click on/ scan QR code)

MATHEMATICS - STANDARD 10

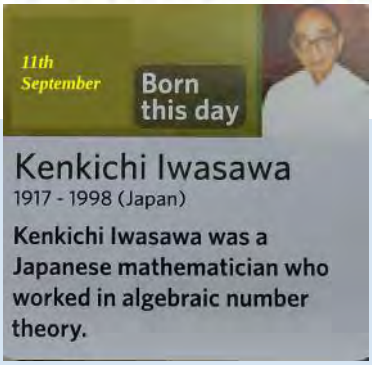
WORKSHEET FOR 11TH SEPTEMBER 2020

A JOINT VENTURE OF DIET PALAKKAD AND SSK PALAKKAD

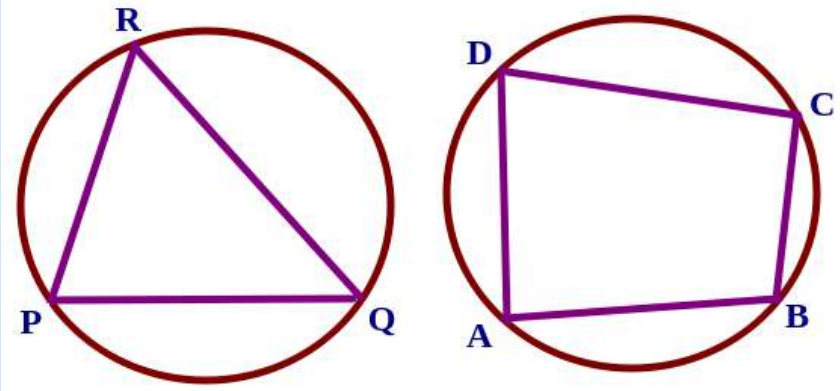
28

INTER BELL
INTERVENTION BASED ON EFFECTIVE LEISURE LEARNING

STUDENT SUPPORT MATERIAL for X Mathematics



Circum circle and Cyclic quadrilateral



MATHEMATICS - STANDARD 10

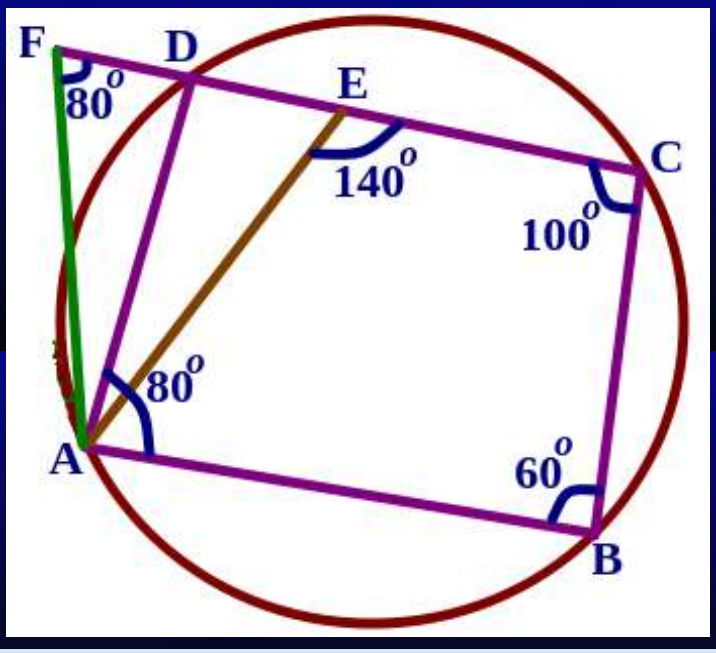
WORKSHEET FOR 11TH SEPTEMBER 2020

In figure, $\angle C = 100^o$, $\angle DAB = 80^o$ and $\angle B = 60^o$. Then,

i) $\angle DAB + \angle C =$ _____?

ii) $\angle ADC + \angle B =$ _____?

iii) $\angle ADC =$ _____?



From figure

$\angle AEC > \angle ADC$

$\angle AEC + \angle B =$ _____?

$\angle AEC + \angle B >$ _____?

$\angle AFC < \angle ADC$

$\angle AFC + \angle B =$ _____?

$\angle AFC + \angle B <$ _____?

- ***If all the four vertices of a quadrilateral are on a circle, then the sum of angles at its opposite vertices will always be 180^o.***
- ***If one vertex of a quadrilateral is out side the circle drawn through the other three vertices, then the sum of the angle at this vertex and the opposite vertex is less than 180^o.***
- ***If it is inside the circle, then the sum is more than 180^o.***

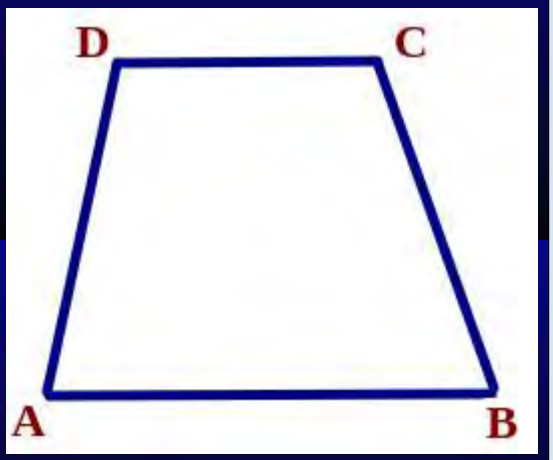
MATHEMATICS - STANDARD 10

WORKSHEET FOR 11TH SEPTEMBER 2020

Watch and learn.....

For widened thoughts.....

1) In a quadrilateral ABCD, AB and CD are parallel and, ∠A + ∠C = 190^o.



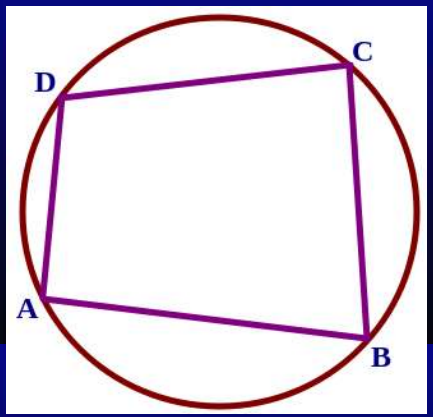
a) If a circle is drawn through A, B and D, check whether the point C is on, outside or inside the circle.

b) If AD = BC, can you draw a circle passing through A, B, C and D?

c) Find an appropriate name for that quadrilateral.

2) ABCD is a cyclic quadrilateral.

If ∠A + ∠D = 200^o and ∠D + ∠C = 240^o, then



a) Find the measure of ∠A + ∠C.

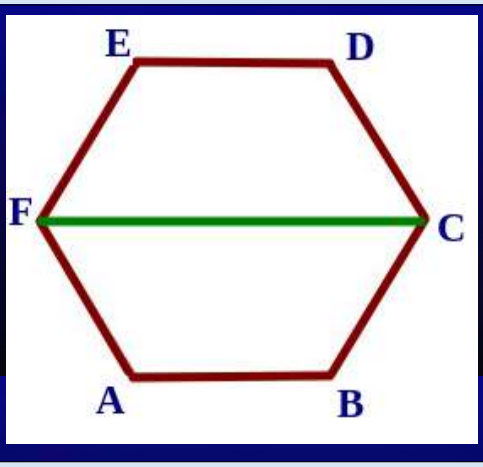
b) What is the measure of ∠D?

c) What are the measures of ∠A and ∠C?

MATHEMATICS - STANDARD 10

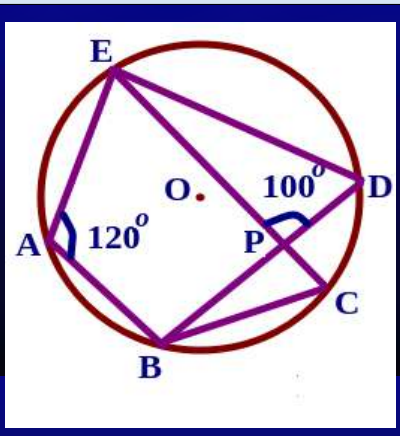
WORKSHEET FOR 11TH SEPTEMBER 2020

3) Examine whether the two quadrilaterals obtained by joining the vertices F and C of a regular hexagon ABCDEF are cyclic or not? Why?

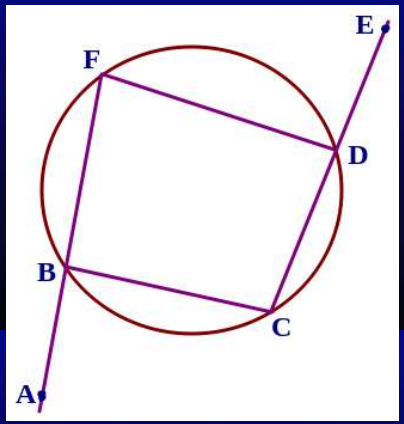


Are all regular polygons cyclic?

4) In figure, A,B, C, D and E are points on a circle with centre O. If ∠EAB = 120^o and ∠EPD = 100^o then find ∠EDB, ∠ECB and ∠DBC.



5) In figure, B, C, D and F are points on the cirlce. Can you prove that ∠ABC + ∠EDF = 180^o ?



MATHEMATICS - STANDARD 10

WORKSHEET FOR 11TH SEPTEMBER 2020

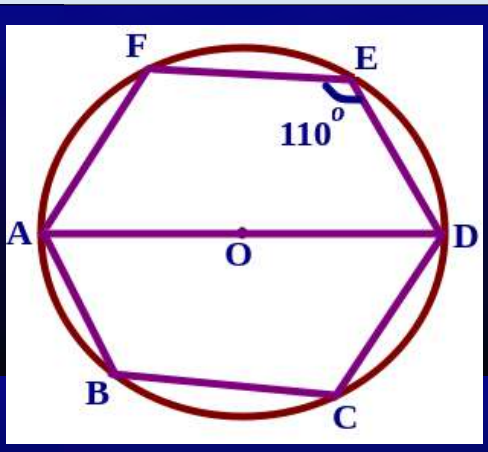
6) In figure, AD is the diameter.

If AB = BC = CD and ∠DEF =110^o then

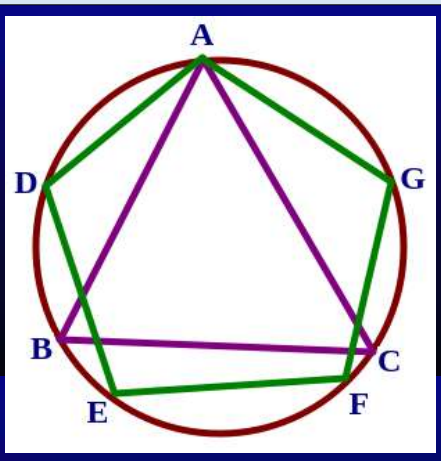
a) ∠AEF = _____

b) ∠BAF = _____

c) ∠BCD = _____

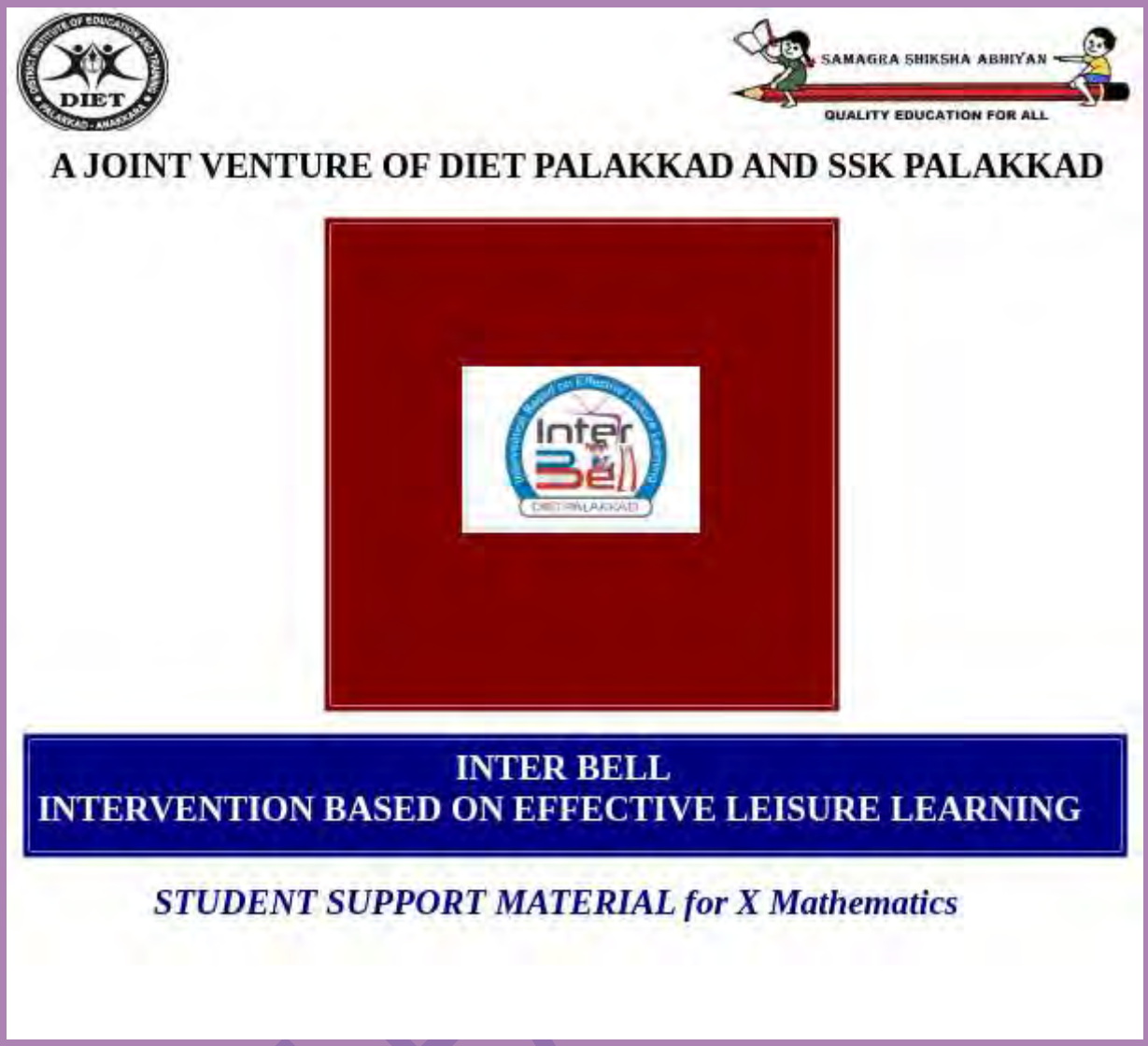


7) In figure, ABC is an equilateral triangle and ADEFG is a regular pentagon. Can you find the central angle of arc BD?



Watch, try and learn.....

WORKSHEET FOR 9TH SEPTEMBER 2020



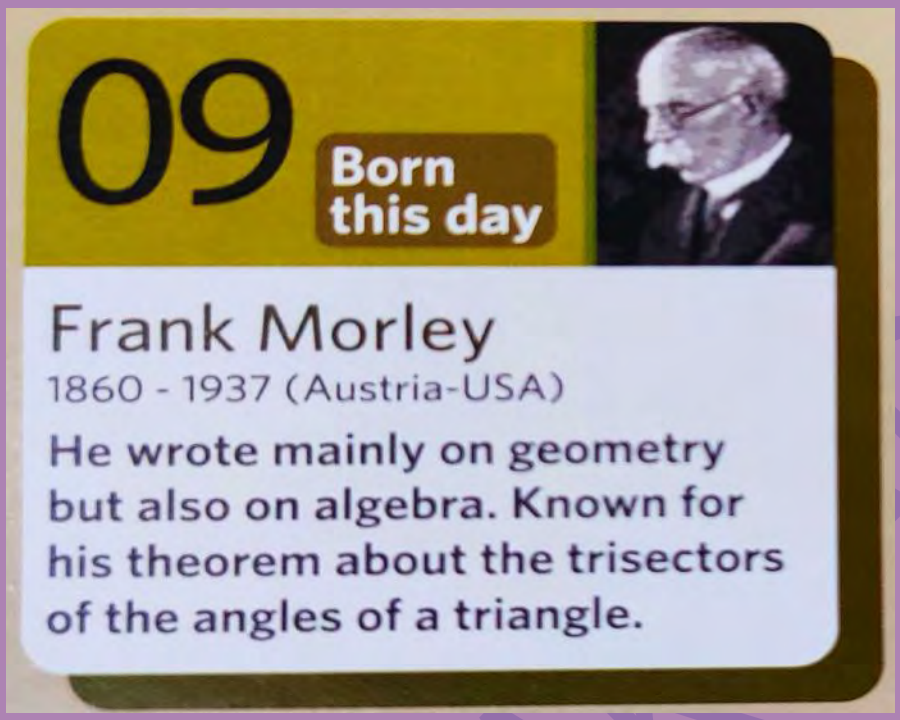
Prepared by:

Rajesh, KHS Kumaramputhur Mannarkkad	Linto A Vengassery, Puliyaparamb HSS
Manoj Kumar A K, KTMHS Mannarkkad	Gireesh P, KAHHS Kottopadam
Sathy P Menon, GHSS Nemmara	K K Jaya, GHSS Chundambatta
Santhosh, GHS Alanallur	Resi Yusaf, GHSS Cherpulassery
Leena K K, MNKMGHSS Pulappatta	Muraleedharan, GHSS Chalissery
Savitha P P, RPMHSS Panangattiri	Bindu N, PKHS Mannapra
Prasad P S, DBHS Thachampara	Suresh K C, DBHS Thachampara
Vimal CG, GOHSS Edathanattukara	Pramod M N, TSNMHS Kundurkunnu
Jayakrishnan K A, DBHSS Thachampara	Sanoj M N GHS Karakurissi

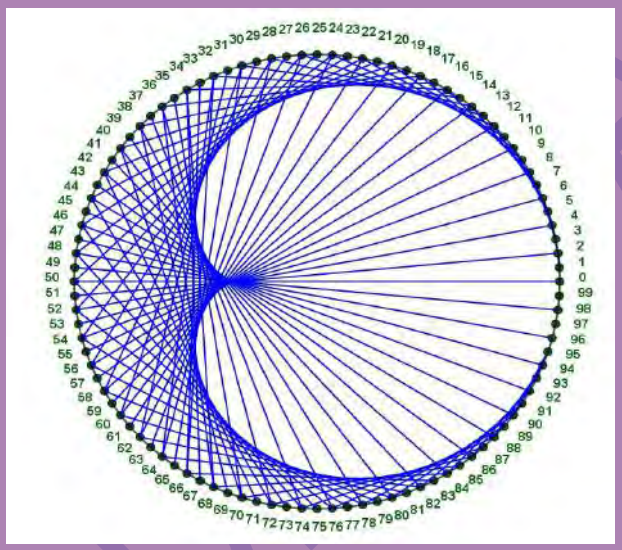
Special Thanks: Divakaran GHS Kozhippara

MATHEMATICS - STANDARD 10

WORKSHEET FOR 9TH SEPTEMBER 2020



Let us draw ...



Shall we draw beautiful patterns like this?

Do you know?

Can you cut this Rounded clock into 10 equal sectors.....?

MATHEMATICS - STANDARD 10

WORKSHEET FOR 9TH SEPTEMBER 2020

***Let us watch and enjoy.....**
Then check your memory*

(Click on the QR codes)

Now you can learn some text book problems .....
Write each in your note book.....
(Click on the QR code)

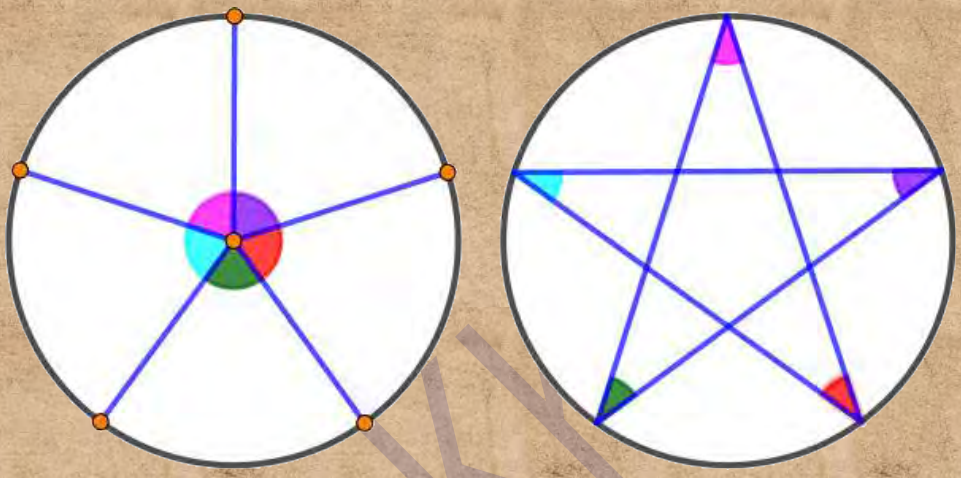
MATHEMATICS - STANDARD 10

WORKSHEET FOR 9TH SEPTEMBER 2020

For widened thoughts....

Question 1.

In both the figures, find the angles marked. (*Hint: All the angles in each figure are same)*



Question 2.

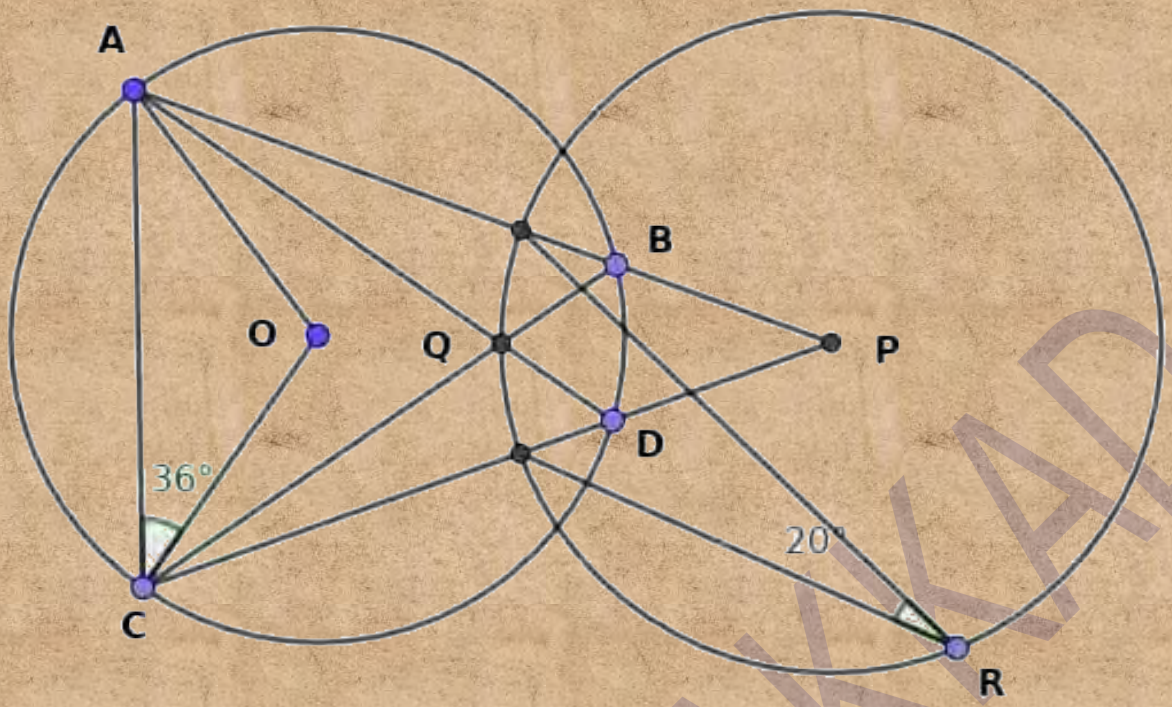
GOPAL AND HIS COWS

Gopal walked towards his cows where he had tied them. He saw that they made two circular shapes by eating grass. Also some stubs were left here and there on the circumference. He visualized and noted the figure and made a question to give in his class after this corona period.

(Both the figure and the question have been given below..... Shall we try once?....)

MATHEMATICS - STANDARD 10

WORKSHEET FOR 9TH SEPTEMBER 2020



In the figure, ∠OCA = 36º and ∠R = 20º. Then find,

i) ∠AOC (*Hint: Central angle)*

ii) ∠ABC and iii) ∠ADC (*Hint: Angles in the same segment*)

iv) ∠PBQ (*Hint: Using* ∠ABC *or* ∠ABQ)

v) ∠PDQ (*Hint: Using* ∠ADC *or* ∠QDC)

vi) ∠BPD (*Hint: Central angle and* ∠R = 20º)

vii) ∠BQD (*Hint:* PBQD *is a qudrilateral)*

viii) ∠AQC (*Hint: Using* ∠BQD)

ix) ∠AQB (*Hint: Using* ∠AQC)

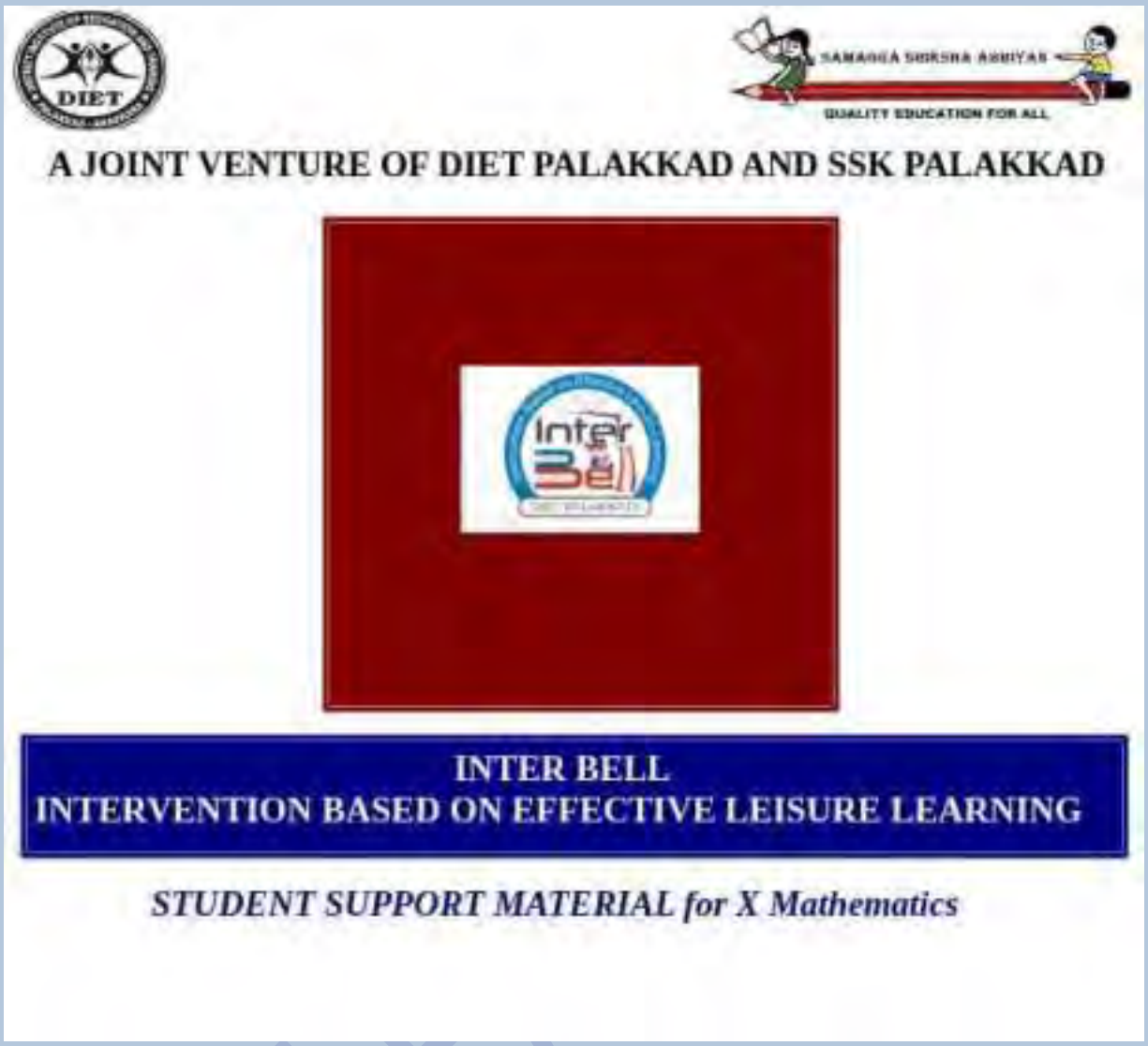
x) ∠BAQ (*Hint: Sum of angles in* Δ*AQB* 180º)

Thank you ...

MATHEMATICS - STANDARD 10

25-26

WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020



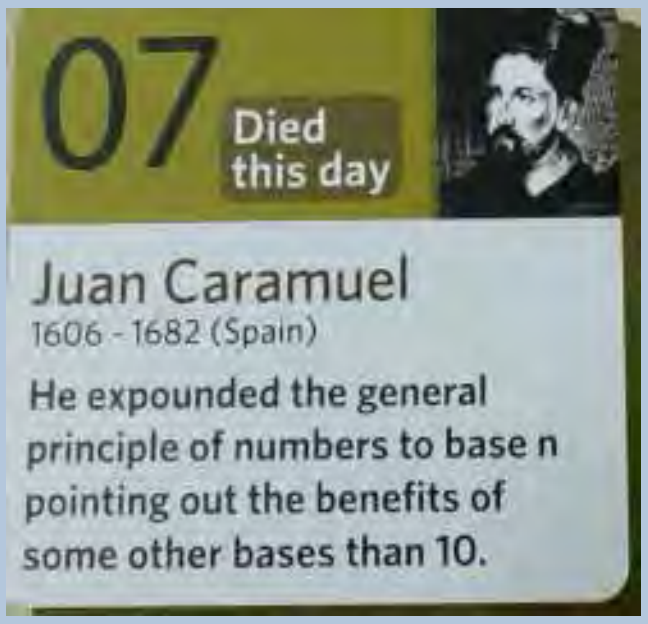
Prepared by:

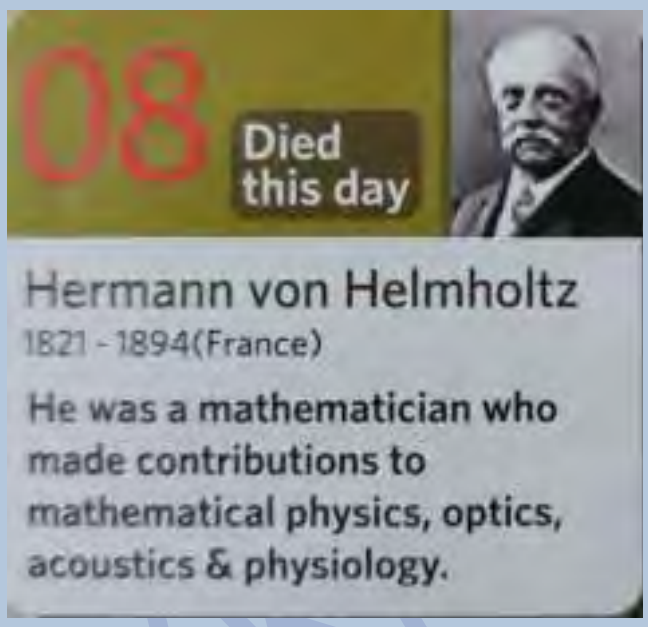
Rajesh, KHS Kumaramputhur Mannarkkad	Linto A Vengassery, Puliyaparamb HSS
Manoj Kumar A K, KTMHS Mannarkkad	Gireesh P, KAHHS Kottopadam
Sathy P Menon, GHSS Nemmara	K K Jaya, GHSS Chundambatta
Santhosh, GHS Alanallur	Resi Yusaf, GHSS Cherpulassery
Leena K K, MNKMGHSS Pulappatta	Muraleedharan, GHSS Chalissery
Savitha P P, RPMHSS Panangattiri	Bindu N, PKHS Mannapra
Prasad P S, DBHS Thachampara	Suresh K C, DBHS Thachampara
Vimal CG, GOHSS Edathanattukara	Pramod M N, TSNMHS Kundurkunnu
Jayakrishnan K A, DBHSS Thachampara	Sanoj M N GHS Karakurissi

Special Thanks: Divakaran GHS Kozhippara

MATHEMATICS - STANDARD 10

WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020





Let us draw ...

Shall we draw beautiful patterns like this?

Do you know?

1) How many times do the minute hand and hour hand of a clock appear as a straight line in 12 hours?

2) How many times do the minute and hour hands of a clock make 90° in half of a day? [12 hours]

MATHEMATICS - STANDARD 10

WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020

Can you complete Ramu's story

Ramu and his grandpa used to play some Math puzzles during their free time. One evening grandpa took an old clock and said,

" Ramu, come, let's play with this clock."

" Okay, grandpa."

'' Did you notice the point where the hands of the clock are fixed?"

"It's at the centre of the circle and the angle around it is 360^0, isn't it grandpa?"

Grandpa: Can you tell me what's the angle made by the minute hand when it moves for one minute?

Ramu: Ummm.....it's .....

[Can you help Ramu?]

Grandpa: It's $\frac{360^o}{60}$ = ____^{0}, right?

Ramu: Then in 5 minutes the needle moves 5 x 6 = __^{0}, am I correct grandpa?

Grandpa: If you connect the end points of all the 3 hands of the clock, can you see a triangle?

Ramu: Let me draw, grandpa.

[You can also draw this figure in your note book]

Grandpa : Can you tell me what's the angle made at the centre by moving from A to B? What about the angle from B to C? Also from C to A?

1) ∠ AOB = _____
2) ∠BOC = _____
3) ∠AOC = _____

Ramu: Yes, I got it.....

[Hint: Number of completed minutes x 6^0

eg. Moving from 1 to 4 gives 15 minutes.

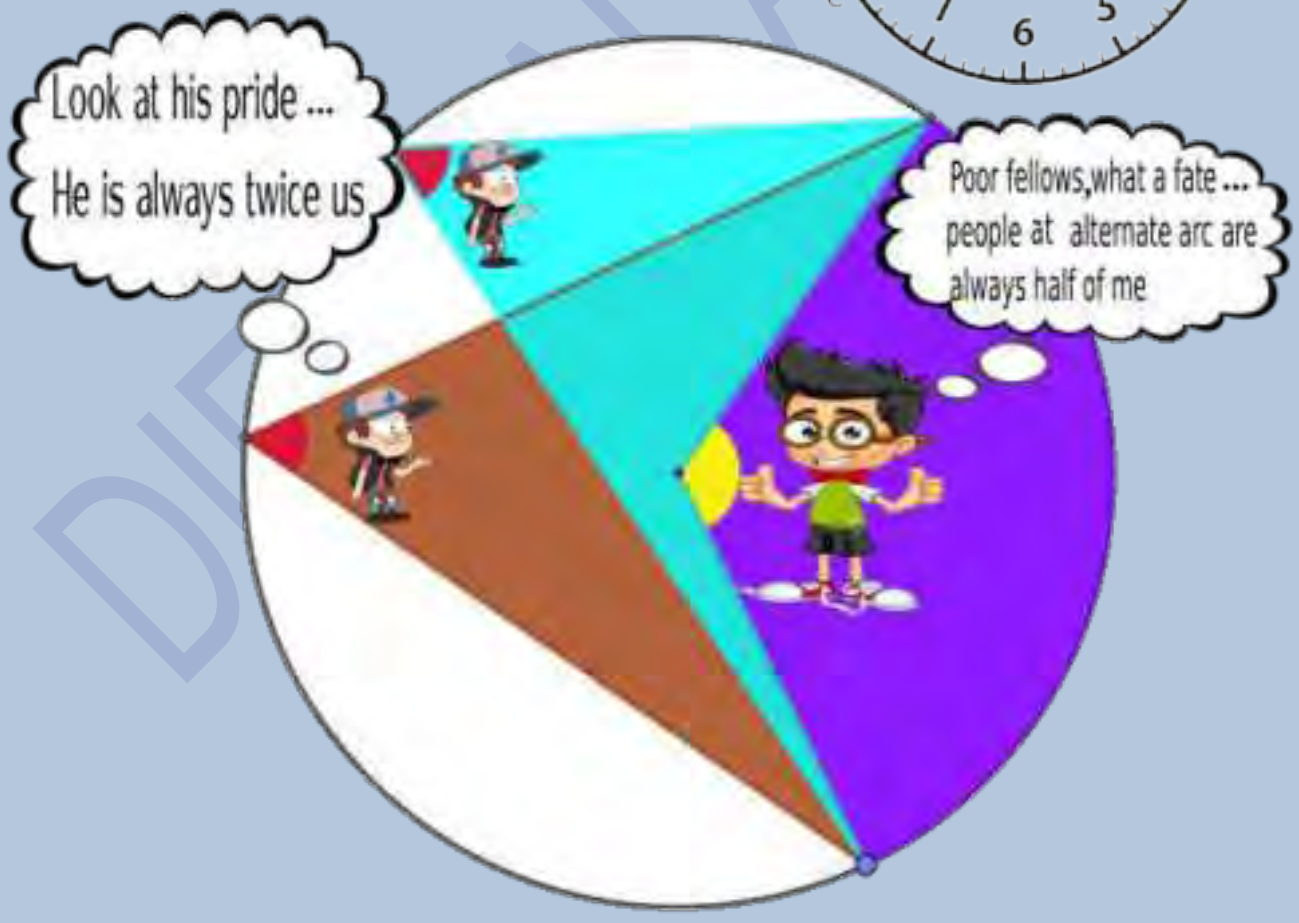
Angle moved = 15 x 6 = 90^0]

a) ∠A =___ ,
b) ∠B = ___ ,
c) ∠C = ___. [Hint: Half of the central angle.]

Grandpa : You are brilliant! One more question dear.
If all the angles of a triangle are equal, what's the measure of each?
Where should be the ends of the hands of the clock?
In how many ways can you make this equilateral triangle?

PLEASE HELP RAMU.....

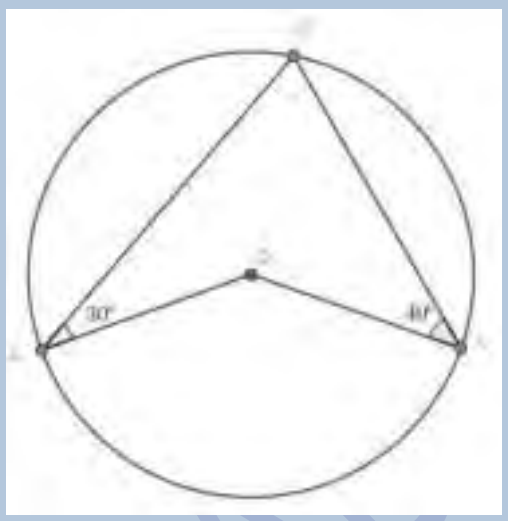
[Hint: All the angles of the triangle must be 60^0.
So the central angle must be 120^0.
To get 120^0 at the centre, how much should the hands of the clock move?]



MATHEMATICS - STANDARD 10

WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020

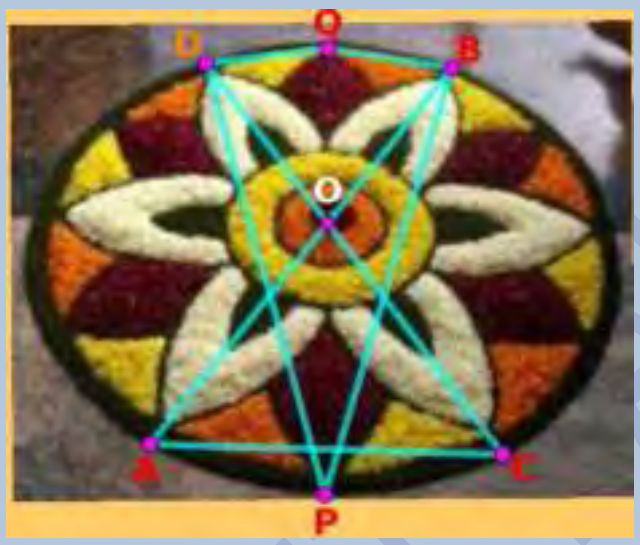
- In the figure $\angle BAO = 30^o, \angle BCO = 40^o$ then compute the following angles.



(a) $\angle ABC$ = _____

(b) $\angle AOC$ = _____

***Can you help Ammu ***



Ammu made a beautiful circular Pookkalam on Onam Competition. Appu came there to check the accuracy of the Pookkalam. He marked the centre as O ,diameters as AB and CD, and points on the circle as P and Q.

He measured ∠DPB as 45^0.

Appu thinks that he is the 'Master of Maths.'

" Can you match these angles correctly, Ammu?"

ANGLES	MEASURES
∠DPB	180^0
∠DQB	60^0
∠DOB	45^0
∠AOC	90^0
	135^0

MATHEMATICS - STANDARD 10

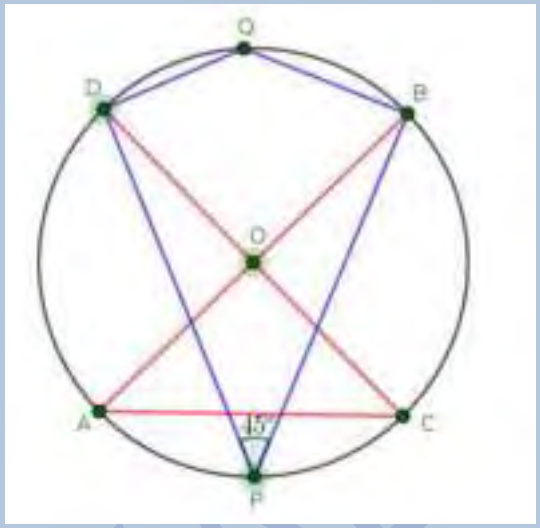
WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020

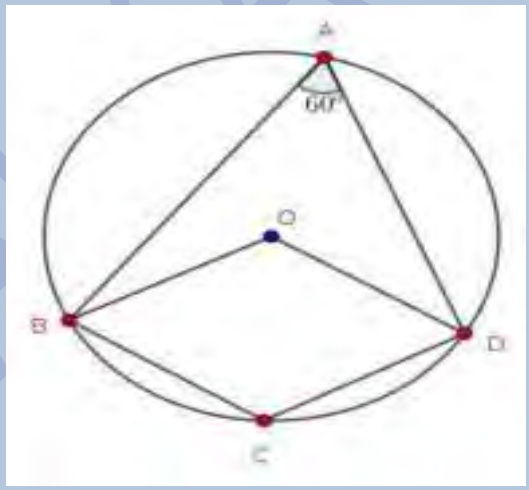
Ammu is a smart girl. She easily completed the task.
"Now it's my turn, Appu."

1. "Tell me what type of triangle is ΔAOC?"
2. "One more question, If AC = 10 cm, what's the radius of the circle?

Now Appu is puzzled. Please help him.....

[HINT: Remember the ratio of sides of a triangle when the angles are 45^0, 45^0 and 90^0.
Or you can use Pythagorus theorem.]



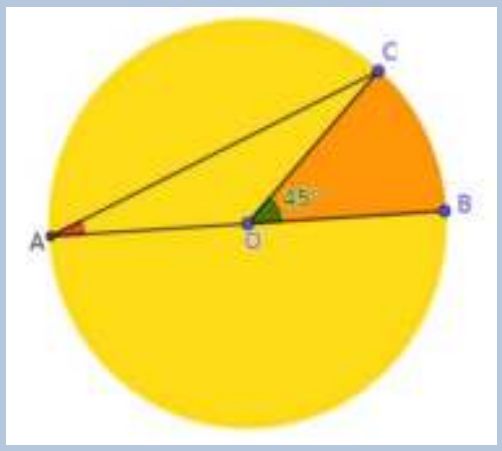


- In figure O is the centre of circle.

  ∠BOD = _____ ∠C = _____

In the figure O is the centre of the circle
∠COB = 45°.

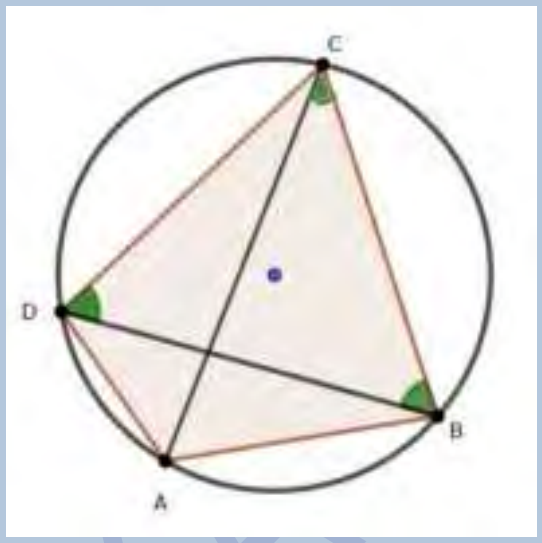
- ∠CAB = _____
- Draw a circle of radius 3 cm as in the figure. Draw the diameter AB, then mark 45° at the centre of the circle. Join OC and AC. Then measure ∠A.
- Similarly, construct **17½ , 27½** angles at A as different figures.



MATHEMATICS - STANDARD 10

WORKSHEET FOR 7TH and 8TH SEPTEMBER 2020

➢ From the figure, write four pairs of equal angles.
If **∠ACB=50º , ∠BDC=30º, ∠CBD=70º**



Find the following.

1) Find the central angle of Arc ADC?
2) Find the central angle of Arc BCD?

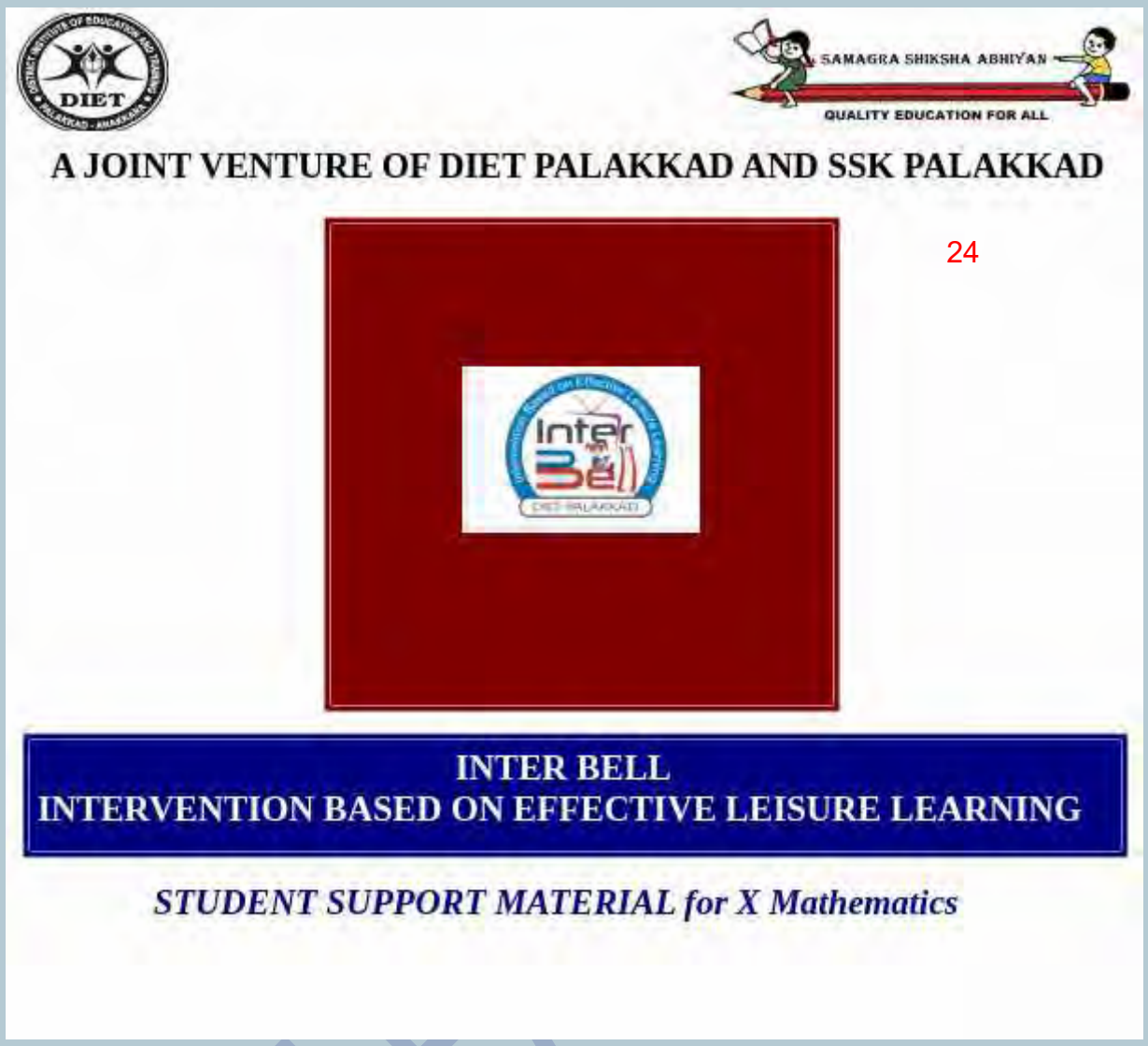
Click here to Scan QR code to learn Home work problem

Learn to draw triangles if circum radius and two of its angles are given ... Draw each in your note book.

Thank you ...

MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020



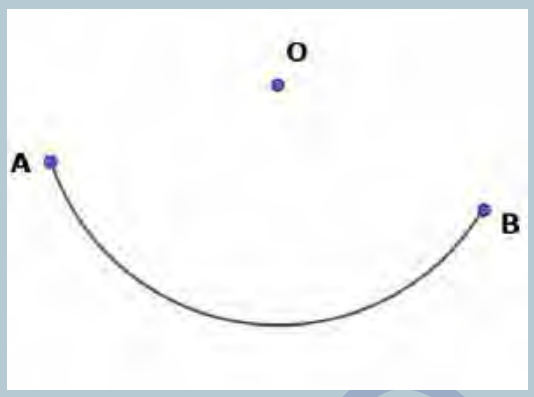
Prepared by:

Rajesh, KHS Kumaramputhur Mannarkkad	Linto A Vengassery, Puliyaparamb HSS
Manoj Kumar A K, KTMHS Mannarkkad	Gireesh P, KAHHS Kottopadam
Sathy P Menon, GHSS Nemmara	K K Jaya, GHSS Chundambatta
Santhosh, GHS Alanallur	Resi Yusaf, GHSS Cherpulassery
Leena K K, MNKMGHSS Pulappatta	Muraleedharan, GHSS Chalissery
Savitha P P, RPMHSS Panangattiri	Bindu N, PKHS Mannapra
Prasad P S, DBHS Thachampara	Suresh K C, DBHS Thachampara
Vimal CG, GOHSS Edathanattukara	Pramod M N, TSNMHS Kundurkunnu
Jayakrishnan K A, DBHSS Thachampara	Sanoj M N GHS Karakurissi

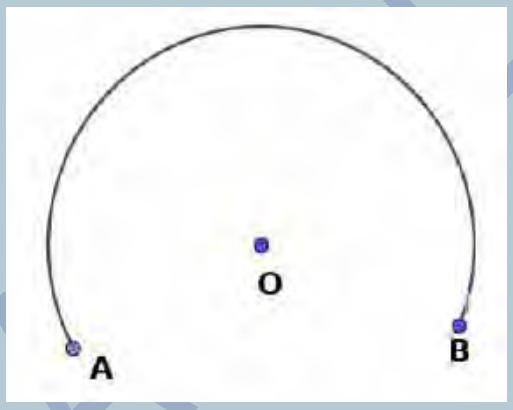
MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

- **Smaller arc (Minor arc)**

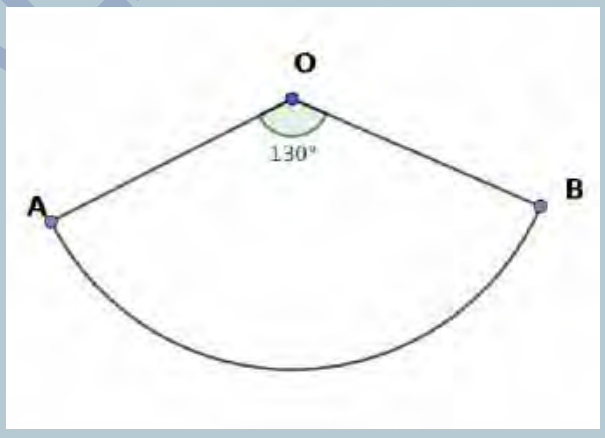


- **Larger arc (Major arc)**



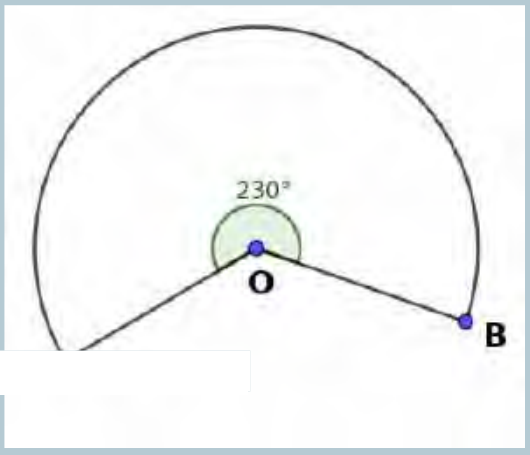
- **Angle made by a minor arc at the centre**

(Central angle, ∠AOB = 130º)



- **Angle made by a major arc at the centre**

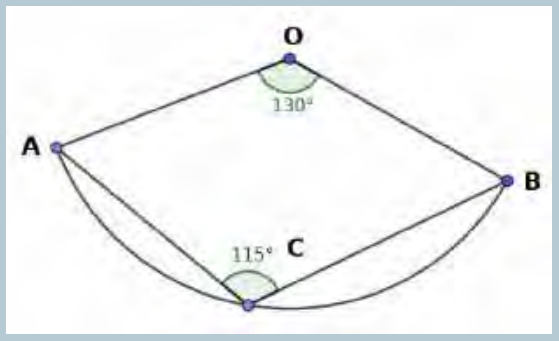
(Central angle, ∠AOB = 230º)



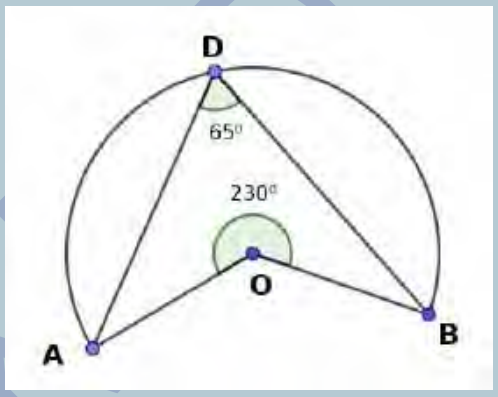
MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

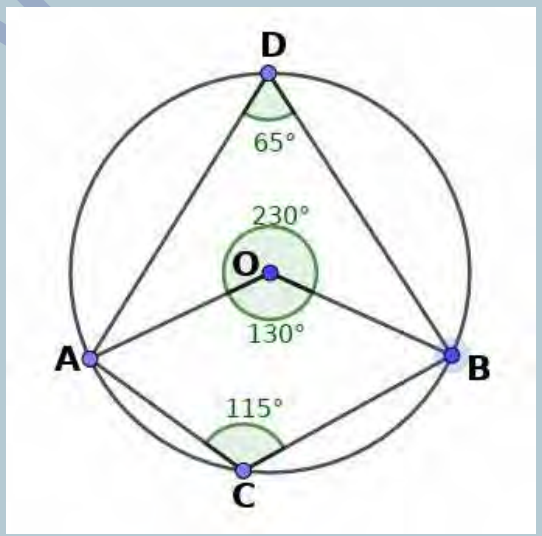
- **Angle made by the major arc on minor arc (∠ACB = 115º) and the central angle of minor arc (∠AOB = 130º).**



- **Angle made by the minor arc on major arc (∠ADB = 65º) and the central angle of major arc (∠AOB = 230º).**



- **In the figure, arc ACB and arc ADB join to form a circle. So sum of their central angles is 360º.**



∠ADB = $\frac{1}{2}$ Central angle of arc ACB (smaller arc)

∠ADB = $\frac{1}{2}$ (360º - Central angle of arc ADB)

∠ACB = $\frac{1}{2}$ Central angle of arc ADB (larger arc)

∠ACB = $\frac{1}{2}$ (360º - Central angle of arc ACB)

∠ADB + ∠ACB = $\frac{1}{2}$ Central angle of smaller arc + $\frac{1}{2}$ Central angle of larger arc

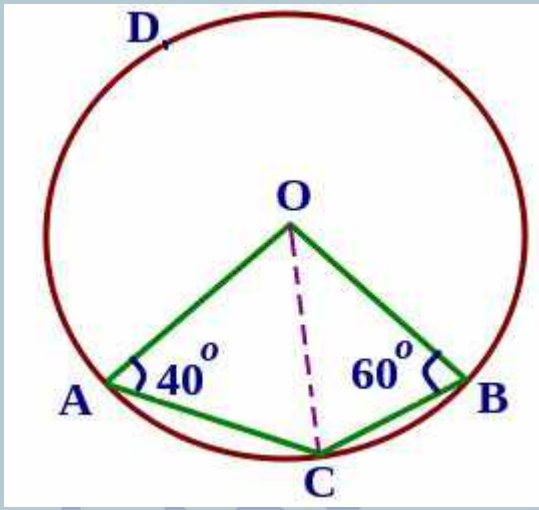
= $\frac{1}{2}$ (Central angle of smaller arc + Central angle of larger arc)

= $\frac{1}{2}$ (360º) = 180º

MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

Activity 1



In the figure, O is the centre of the circle.

1. Name the isosceles triangles.
2. i) ∠ACO = ___ ii) ∠BCO = ___
3. ∠AOC = ____
4. ∠BOC = ____
5. The angle made by the minor arc ACB at the centre, ∠AOB = _____
6. The angle made by the major arc ADB at the centre = 360^o - ∠AOB = _____
7. ∠ACB = _____

$$\therefore \angle ACB = \frac{\text{Central angle made by major arc}}{2}$$

$$= \frac{360^o - \text{Central angle made by minor arc}}{2}$$

$$= 180^o - \frac{\text{Central angle made by minor arc}}{2}$$

The angle made by a larger arc on a smaller arc is same as half of the angle made by the larger arc at the centre.

Or, 180^o – half of the angle made by the smaller arc at the centre.

Watch and learn.....

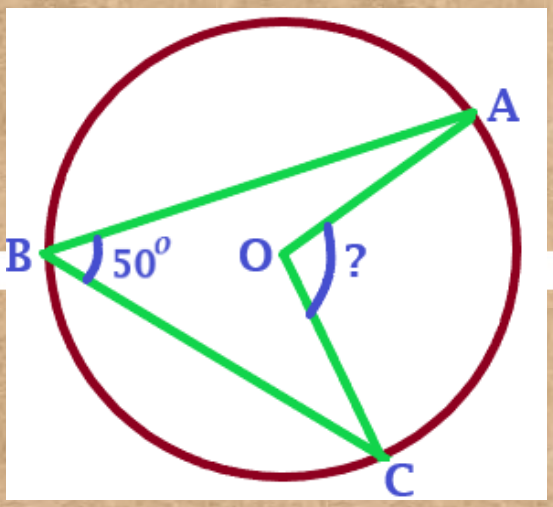
MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

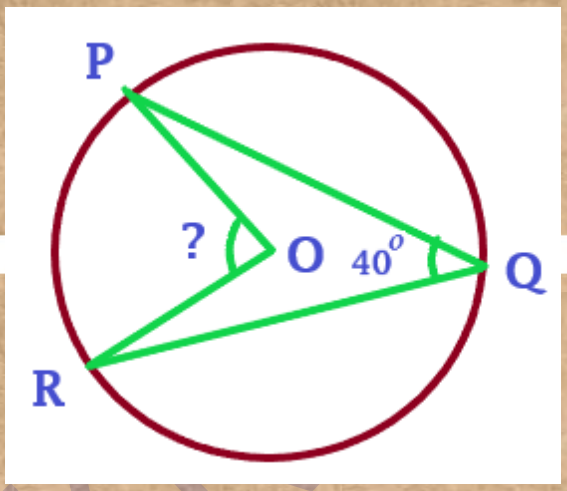
Try this....

Given that O is the centre of the circles given below. Find the measure of the angles given with question mark.

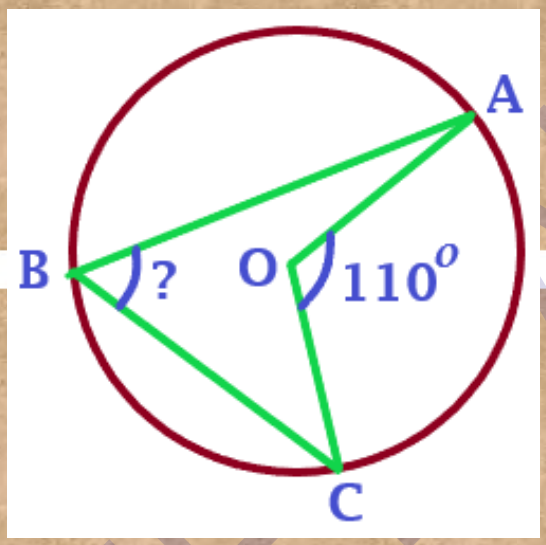
i)



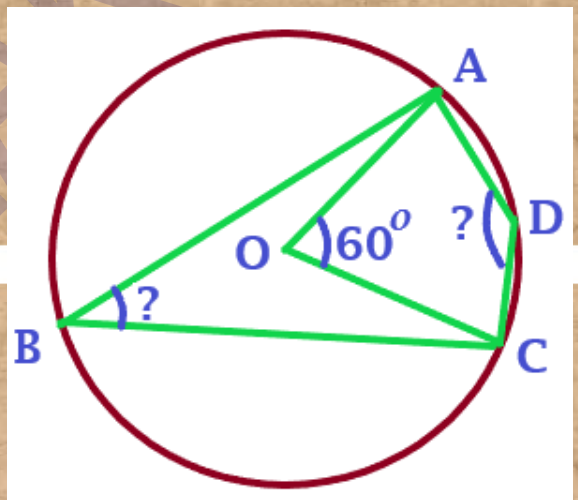
ii)



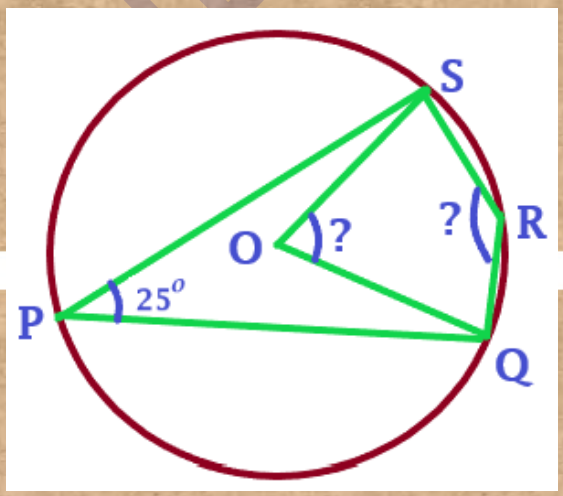
iii)



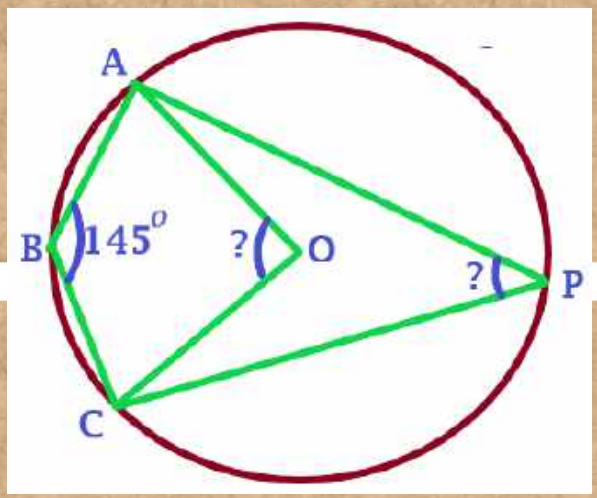
iv)



v)



vi)



MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

Activity 2

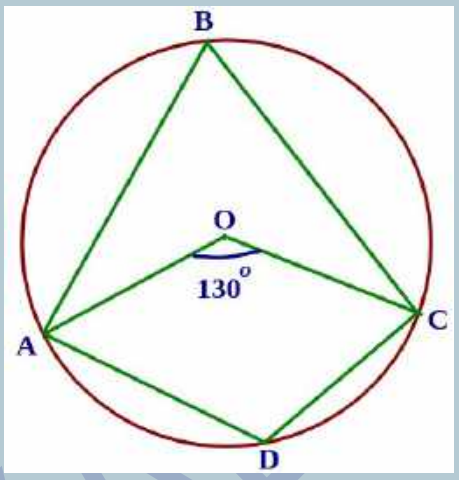
In figure O is the centre of the circle. The central angle angle of arc ADC is 130°. Then find

i)Measure of the central angle of arc ABC

ii) ∠ABC

iii)∠ADC

iv) ∠ABC + ∠ADC.



A pair of angles on an arc and its alternate are supplementary. That is the sum of angles in the opposite arcs is always 180°.

Watch and learn.....

MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

For widened thoughts.....

Activity 1

In figure, O is the centre and PS is a diameter. If ∠SQT = 40^o, find the measures of

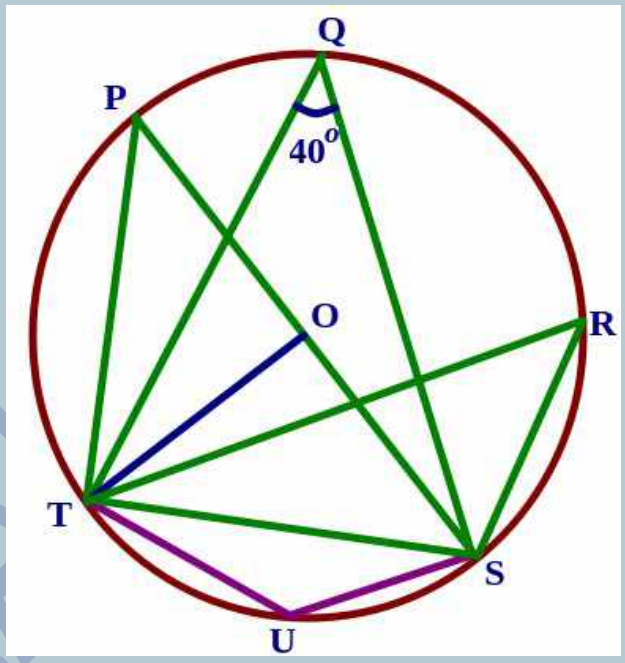
i) ∠TOS

ii) ∠TRS

iii) ∠PTS

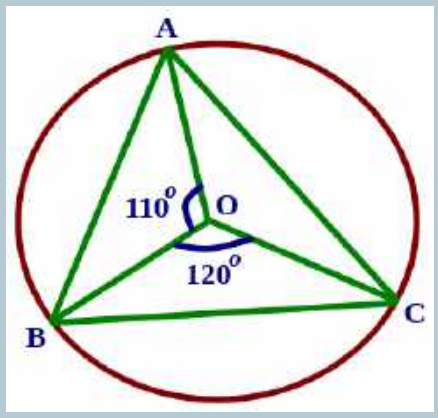
iv) ∠TSP

v) ∠TUS



Activity 2

In figure, O is the centre. If ∠BOC = 120^o and ∠AOB = 110^o then find all the angles of ΔABC.

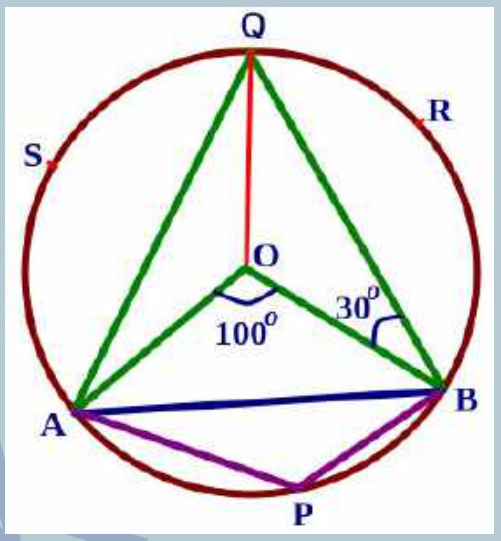


MATHEMATICS - STANDARD 10

WORKSHEET FOR 4TH SEPTEMBER 2020

Activity 3

In figure O is the centre of the circle. If ∠AOB = 100^o and ∠OBQ = 30^o then find the following.



i) ∠OAB, ∠OBA, ∠AQB, ∠APB, ∠OQB, ∠BOQ, ∠OQA, ∠OAQ, ∠AOQ

ii) Central angle of arc APB

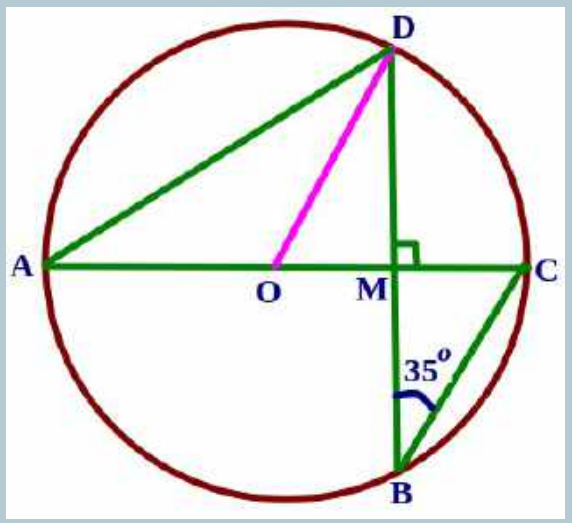
iii) Central angle of arc BRQ

iv) Central angle of arc ASQ

v) Central angle of arc AQB

Activity 4

In figure, O is the centre and AC is a diameter. If ∠CBD = 35^o and BD is perpendicular to AC, find the measure of the following angles.



i) ∠COD **ii) ∠BDO**

iii) ∠OAD **iv) ∠ADO**

v) ∠AOD **vi) ∠ACB**

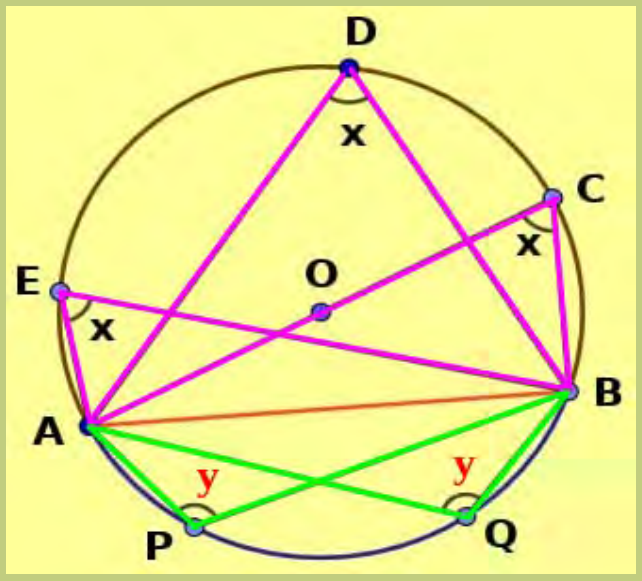
ONLINE CLASS SUPPORTING MATERIALS
PALAKKAD DISTRICT

MATHEMATICS STANDARD 10

Class - 23

Katherine Johnson - Born on 26th August 1918
Creola Katherine Johnson was an American Mathematician whose calculations of orbital mechanics as a NASA employee were critical to the success of the first and subsequent U.S. crewed spaceflights. During her 35-year career at NASA and its predecessor, she earned a reputation for mastering complex manual calculations and helped pioneer the use of computers to perform the tasks. The space agency noted her "historical role as one of the first African-American women to work as a NASA scientist.

The angles subtended by one part of the circle on the other part are equal.

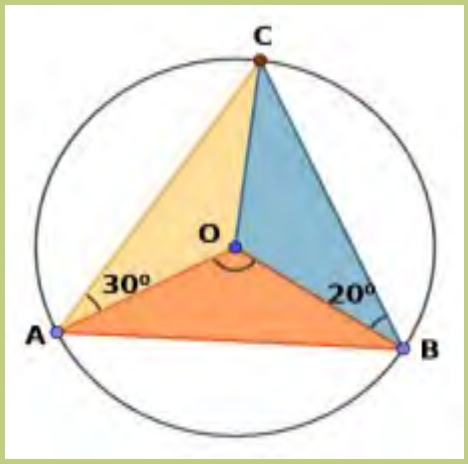


Chord and Angle

If AB is the chord of the circle with centre O and AC and BC are on either side of the centre, then the relation between ∠AOB and ∠ACB.

O is the centre of the circle.

∠OAC = 30° and ∠OBC =20°



i) Write the names of isosceles triangles in the figure?

ii) ∠OCA = ...

iii) ∠OCB = ...

iv) ∠AOC = ...

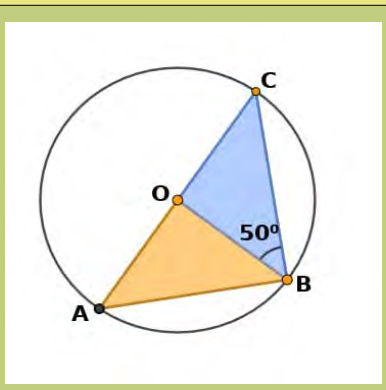
v) ∠BOC= .....

vi) ∠ACB = ... **vii) ∠AOB= .....**

$$\angle ACB = \frac{\angle AOB}{2}$$

If AC is the diameter of the circle then the relation between ∠AOB and ∠ACB.

O is the centre of the circle and ∠OBC = 50° then

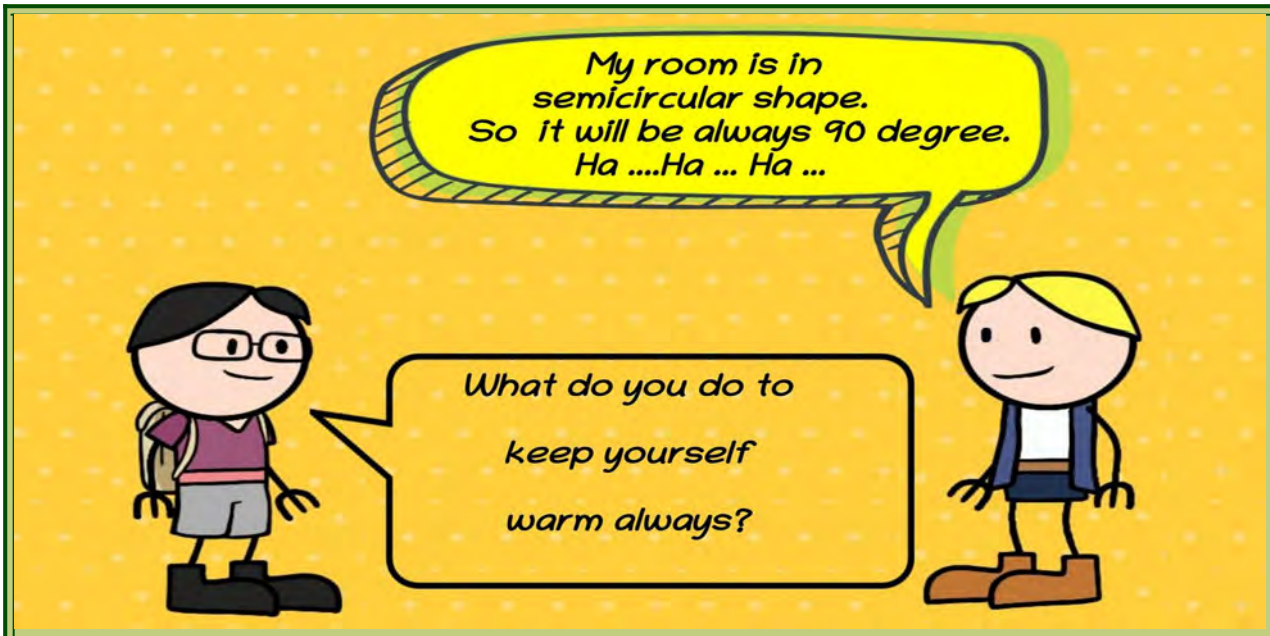


i) Write the names of isosceles triangles in the figure?

ii) ∠OCB = ...

iii) ∠BOC = (180 - .....)= ..... **iv) ∠AOB = ...**

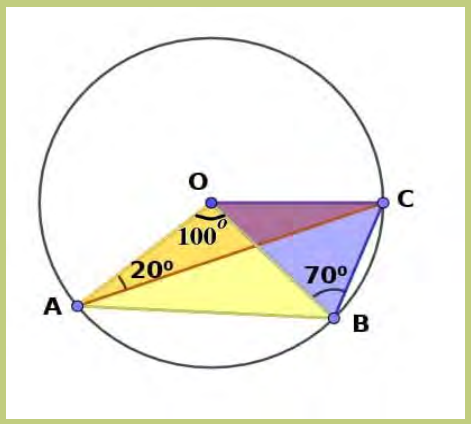
$$\angle ACB = \frac{\angle AOB}{2}$$



If AC and BC are on the same side of the centre, then the relation between ∠AOB and ∠ACB.

O is the centre of the circle.

∠OAC = 20°, ∠OBC =70° and ∠AOB = 100° then



i) Write the names of the isosceles triangles in the figure?

ii) ∠OCA = ……. **ii) ∠OCB =.....**

∠ACB = ∠OCB - ∠OCA

iii) ∠ACB = ……..

$$\angle ACB = \frac{\angle AOB}{2}$$

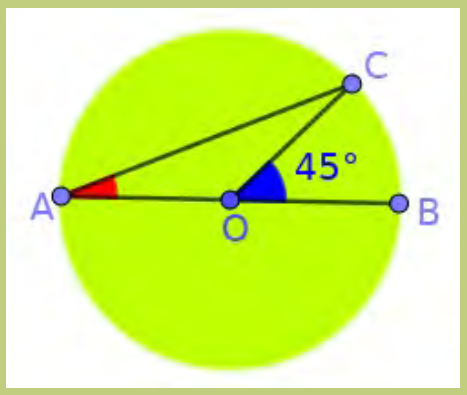
The angle obtained by joining the ends of a chord to any point on the larger part of the circle, is half the angle subtended by the smaller part of the circle at the centre.

Watch and learn.....	**CLICK HERE**
	CLICK HERE

Test yourself....	**CLICK HERE**

Activity 1

O is the centre of the circle and ∠COB = 45°



i) ∠CAB = ...

ii) As in the figure, draw a circle of radius 3 cm with AB as diameter. Mark an angle 45^o at the centre O, then join OC as shown in the figure. Join AC and measure the ∠OAC....

iii) Similarly, construct a) 15°, b) $27\frac{1}{2}°$ at A in different figures.....

Activity 2

In the figure ∠APB=65° then

a) ∠AOB=x° then what is the measure of x?

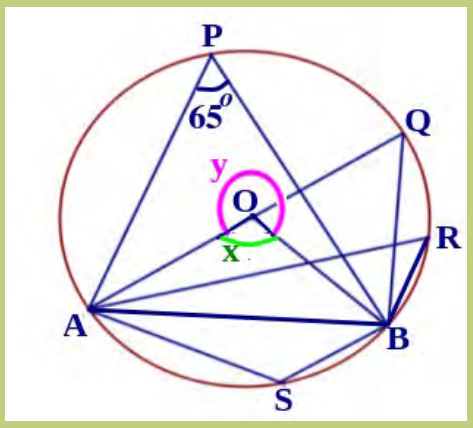
b) ∠AQB=

c) ∠ARB=

d) If the central angle of arc APB is y° then y = ?

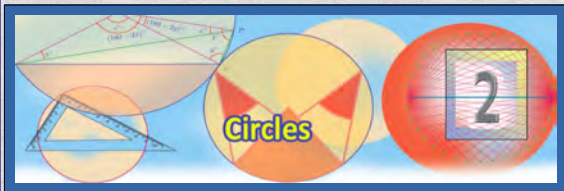
e) ∠ASB=

f) ∠APB+∠ASB =

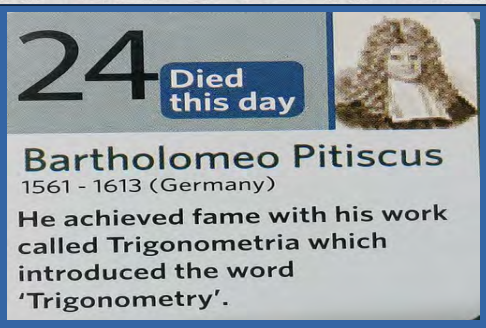


ONLINE CLASS SUPPORTING MATERIALS
PALAKKAD DISTRICT

MATHEMATICS STANDARD 10



Class - 22



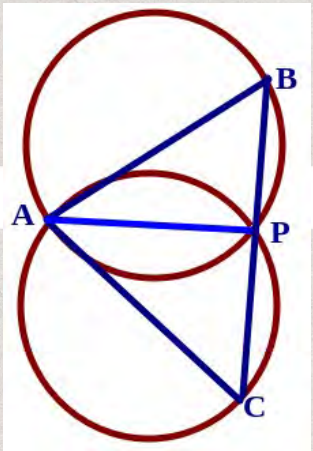
Activity I

In ΔABC, AB = AC. Two circles are drawn with AB and AC as diameters.

i) ∠APB = ∠ APC = _____ [30º, 60º, 45º, 90º]

ii) Why?

iii) Whether PB = PC? Why?



The circles drawn with the equal sides of an isosceles triangle as diameters pass through the midpoint of the third side.

For widened thoughts:

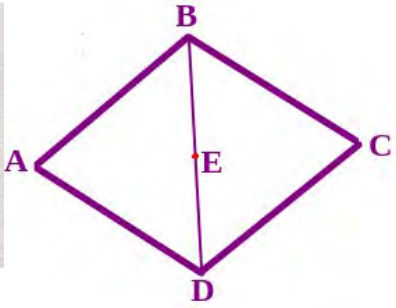
What about the triangles other than isosceles?

Activity II

In rhombus ABCD,

*** All the sides are equal.**

*** E is the midpoint of BD.**

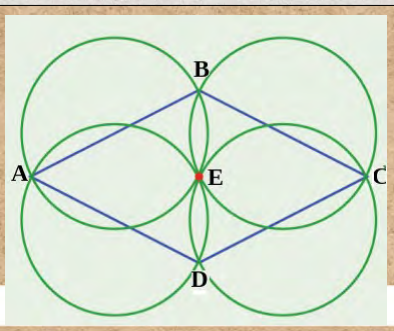


i) Name the two isosceles triangles obtained while drawing the diagonal BD.

ii) Find the point of intersection (other than A)of the circles drawn with AB and AD as diameters.

iii) Find the point of intersection(other than C)of the circles drawn with BC and CD as diameters.

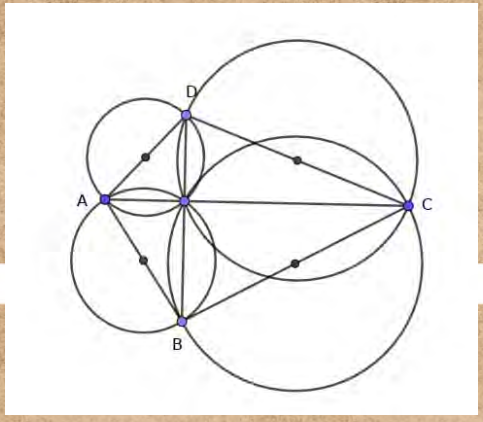
If ABCD is a rhombus, then the circles drawn with all the four sides as diameters pass through a common point.



For widened thoughts:

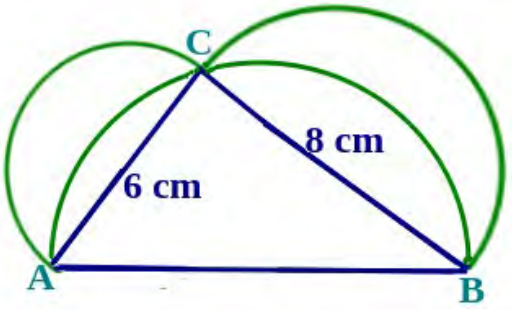
If the diagonals of a quadrilateral are perpendicular to each other, then the circles drawn with the sides of the quadrilateral as diameters pass through a common point (the point of intersection of the diagonals).

Name such quadrilaterals.



Activity III

C is a point on a circle drawn with AB as diameter. Also AC = 6 cm and BC = 8 cm. Then



i) Length of AB = ___ $[\text{hypotenuse}^2 = \text{base}^2 + \text{height}^2]$

ii) What is the area of the semicircle whose diameter is AC? $[\text{Area} = \frac{1}{2}\pi r^2]$

ii) What is the area of the semicircle whose diameter is BC?

iv) What is the area of the semicircle whose diameter is AB?

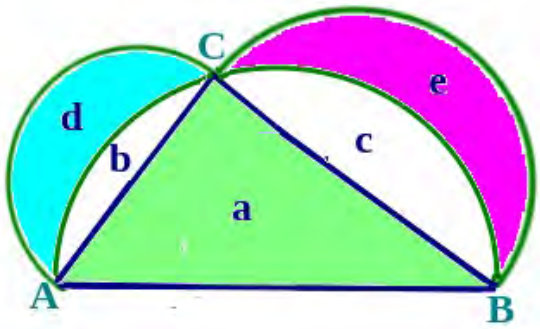
v) How these areas are related?

vi) What is the area of the ΔACB shown in figure? $[\frac{1}{2}\ \text{Base} \times \text{Height}]$

In figure, if each area is denoted by a, b, c, d and e, then it can be noticed that

a + b + c = b + d + c + e

∴ a = d + e

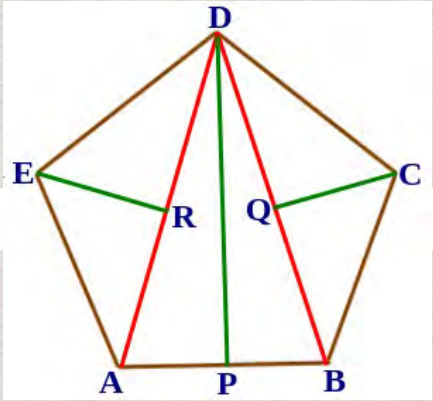


Do yourself and learn yourself.....

CLICK HERE

More Questions

1. ABCDE is a regular pentagon. P, Q and R are the midpoints of AB, BD and AD respectively.



i) What is special about the triangles ΔABD, ΔAED, ΔBCD?

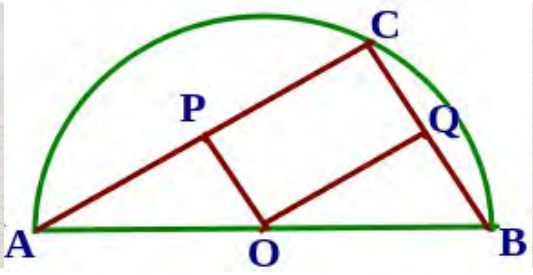
ii) Find the common point through which the circles with diameters AD and BD pass.

iii) What are the sides taken as diameters if the two circles drawn pass through the point Q?

iv) What are the diameters of the circles passing through R?

2. In figure, AB is the diameter and C is a point on the circle.

P and Q are the midpoints of AC and BC respectively.



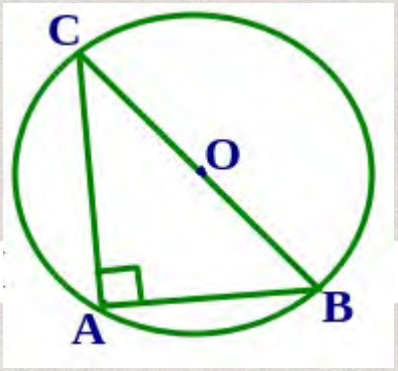
i) What is special about the quadrilateral OPCQ?

ii) Find an appropriate name for the quadrilateral OPCQ.

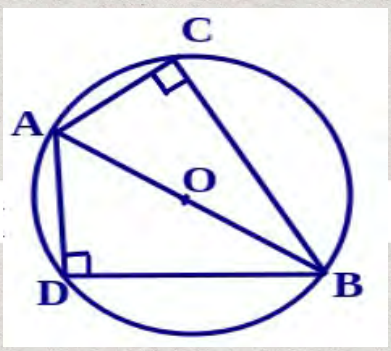
iii) Will OPCQ be a square? When?

Let's think a Little

You have drawn Circum Circles of right angled triangles in 9th standard. Do you remember the position of their Circumcentres?



If we place two right angled triangles with equal hypotenuse together along their hypotenuse , we get different quadrilaterals. All the vertices of such quadrilaterals will be on a circle, isn't it ? Not only that much, the sum of the angles at the opposite vertices will be 180 degrees.



Which are the quadrilaterals having this property? Which of them do not?