MATHEMATICS PROJECT

CLASS: 10A

TOPIC: ANGLES IN THE SAME SEGMENT OF A CIRCLE ARE EQUAL

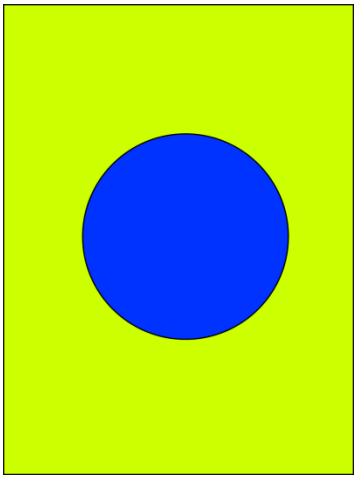
OBJECTIVE: To verify that the angle in the same segment of a circle are equal using the method of cutting, pasting and folding.

MATERIALS REQUIRED:

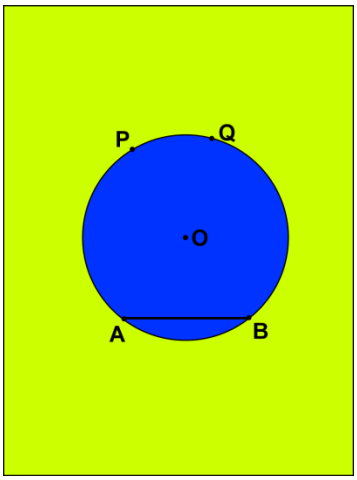
1. Geometry box
2. Practical workbook
3. Coloured chart papers – yellow, blue and red
4. Scissors
5. Scale
6. Sketch pen
7. Adhesives or glue sticks
8. Tracing papers – 2

PROCEDURE:

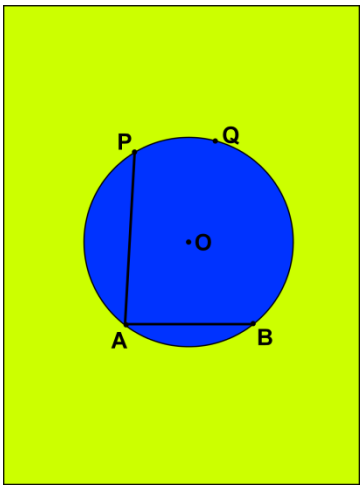
1. Draw a circle of 5 cm radius on a blue coloured chart paper. Use black sketch pen for drawing.
2. Cut out the circle.
3. Take a yellow chart paper. Cut it in the size of an A4 sheet and paste the circle on it.



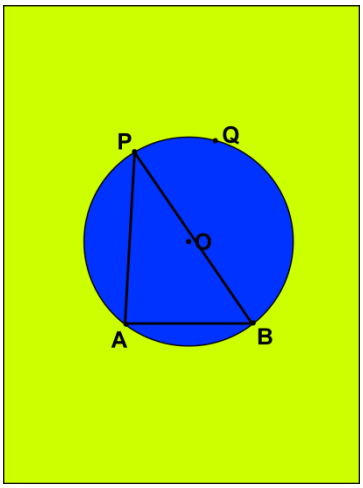
4. Fold the circle in any way such that a chord is made. Draw the line segment AB.
5. Take two points P and Q on the circle in the same segment.



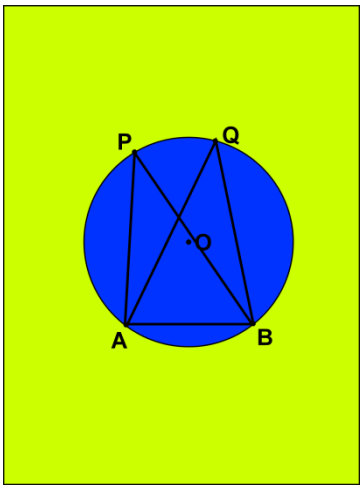
6. Form a crease joining AP. Draw AP.



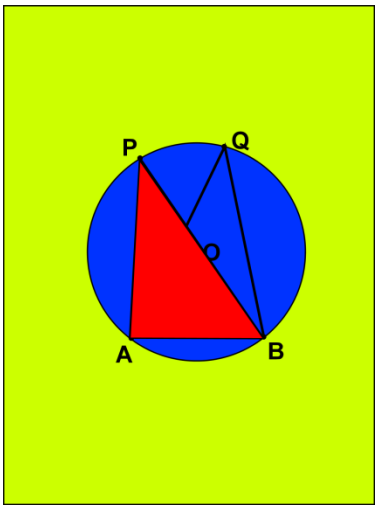
7. Form a crease joining BP. Draw BP.



8. $\angle APB$ is formed in the major segment.
9. Form a crease joining AQ Draw AQ.
10. Form a crease joining BQ. Draw BQ.



11. $\angle AQB$ is formed in the major segment.
12. Place tracing paper on the circle and draw a replica of the $\angle APB$ and $\angle AQB$. Prepare two such replicas of $\angle APB$ with green or red chart papers.



13. Place the cutout of $\angle APB$ on $\angle AQB$. Stick the other replica along the edge BQ.

RESULT:

It is noted that $\angle APB = \angle AQB$ and these angles are in the same segment. $\angle APB$ is completely covered with $\angle AQB$ and thus the theorem is verified.

LAST DATE OF SUBMISSION OF PROJECT: 28th November, 2014

TOPIC: (i) SUM OF EITHER PAIR OF OPPOSITE ANGLES OF A CYCLIC QUADRILATERAL IS 180^O (ii) IN A CYCLIC QUADRILATERAL THE EXTERIOR ANGLE IS EQUAL TO THE INTERIOR OPPOSITE ANGLE

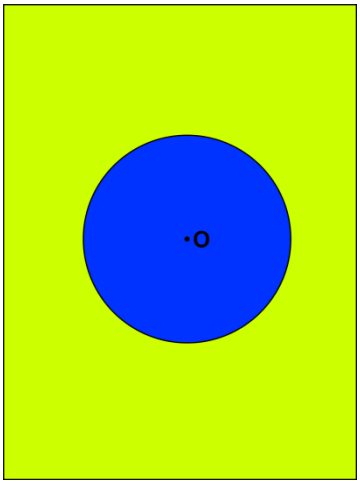
OBJECTIVE: To verify that the (i) sum of either pair of opposite angles of a cyclic quadrilateral is 180^o (ii) in a cyclic quadrilateral the exterior angle is equal to the interior opposite angle materials required

MATERIALS REQUIRED:

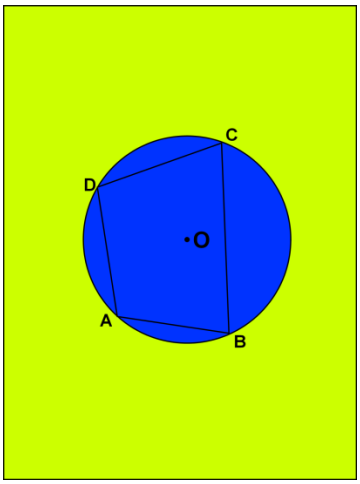
1. Geometry box
2. Practical workbook
3. Coloured chart papers – yellow, blue and pink
4. Scissors
5. Scale
6. Sketch pen
7. Adhesives or glue sticks
8. Tracing papers – 2

PROCEDURE:

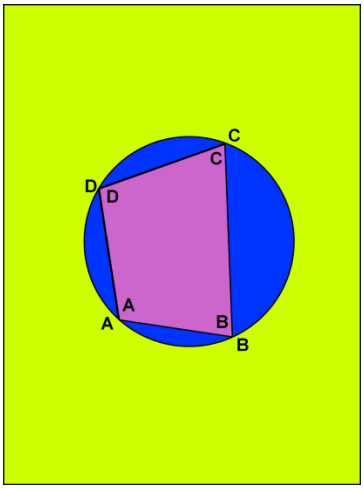
1. Draw a circle of 5 cm radius on a blue coloured chart paper. Use black sketch pen for drawing.
2. Cut out the circle.
3. Take a yellow chart paper. Cut it in the size of an A4 sheet and paste the circle on it.



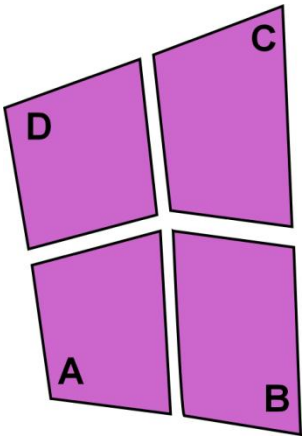
4. By paper folding get the chords AB, BC, CD and DA.
5. Draw the line segments AB, BC, CD and DA. Cyclic quadrilateral ABCD is obtained.



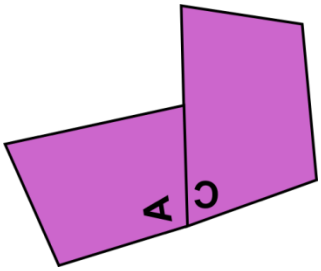
6. Make a replica of cyclic quadrilateral ABCD using a tracing paper. Now draw the quadrilateral on the pink chart paper with the help of tracing paper and cut it out.



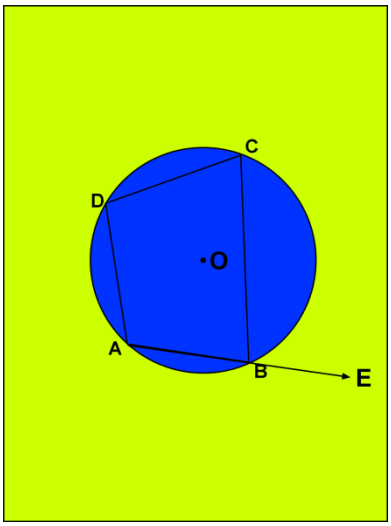
7. Now cut the quadrilateral in 4 parts such that each part contain one angle like $\angle A, \angle B, \angle C, \angle D$.



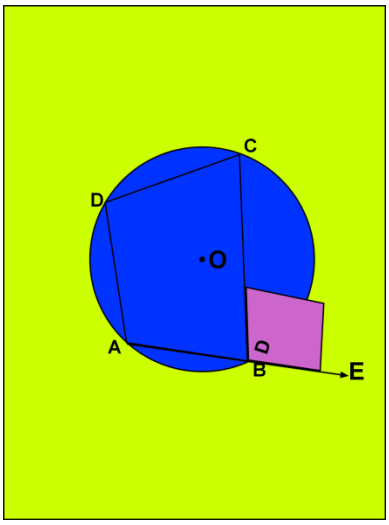
8. Place $\angle A$ and $\angle C$ adjacent to each other.



9. Produce AB to form a ray AE. Exterior $\angle CBE$ is formed.



10. Place the replica of D on $\angle CBE$.



RESULT:

It is noted that when $\angle A$ and $\angle C$ are placed adjacent to each other they form a linear pair: $\angle A + \angle C = 180^{o}$. Also, $\angle D$ completely covers $\angle CBE$. This shows that the exterior angle of a cyclic quadrilateral ABCD is equal to the opposite interior angle.

LAST DATE OF SUBMISSION OF PROJECT: 28th November, 2014