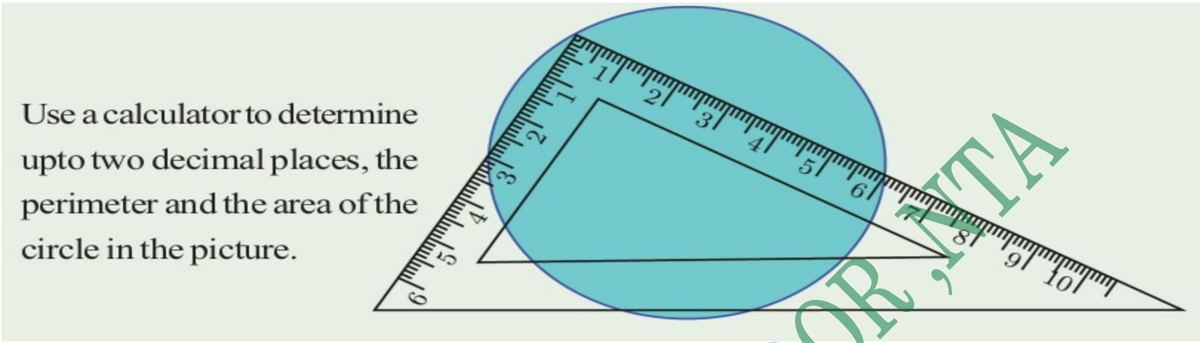
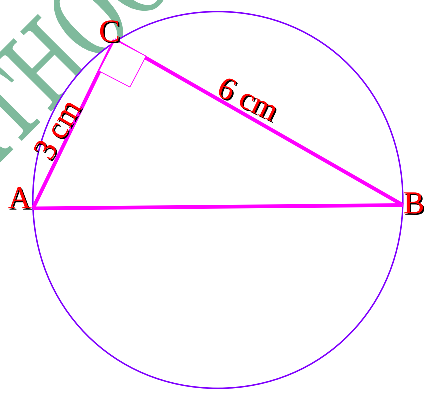
Mathematics Online Class X On 22-07-2021

CIRCLES

click

Answer of question on previous class





This figure can be drawn this way.

$\angle C = 90°$

AB is the diameter of the circle.

ΔABC is a right triangle.

Using Pythagoras theorem ,

$AB^2 = AC^2 + BC^2$

$= 3^2 + 6^2$

$= 9 + 36$

$= 45$

$AB = \sqrt{45} = 6.71$ cm

Radius of circle $= \frac{6.71}{2} = 3.36$ cm

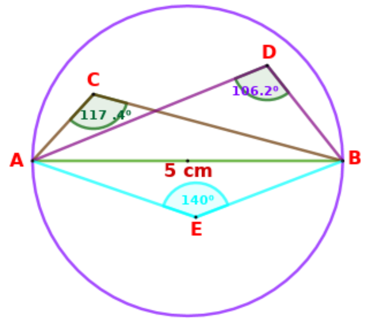
Perimeter of circle $= \pi d = 3.14 \times 6.71 = 21.07$ cm

Area of circle $= \pi r^2 = 3.14 \times 3.36 \times 3.36 = 35.45\ cm^2$

Activity

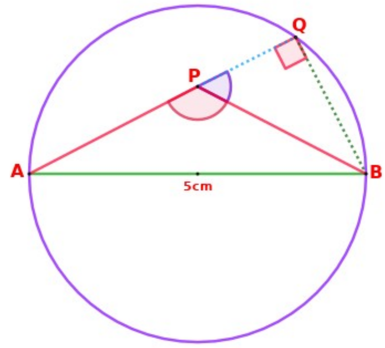
Draw a line of length 5 cm. Draw a circle with this line as diameter. Mark 3 points inside the circle. Join each points to the end points of the diameter. Measure the angles so get and find the common property.

All angles are greater than 90°



Proof :-

AB is the diameter of the circle and P is a point inside the circle.
Join AP and BP.
Extend AP to meet the circle at Q. Join BQ.
Since angle in a semicircle is 90°,
$\angle AQB = 90°$
ie ; $\angle PQB = 90°$
Consider the ΔBQP.
$\angle APB$ is an outer angle of ΔBQP.
Therefore, $\angle APB = \angle PQB + \angle PBQ$
$= 90° + \angle PBQ$
which means $\angle APB$ is greater than 90° ($\angle APB > 90°$)

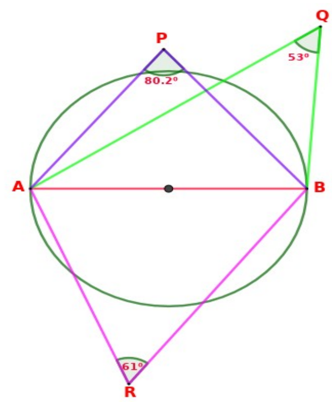


If we join the ends of the diameter of a circle to a point inside the circle gives an angle greater than 90° .

Activity

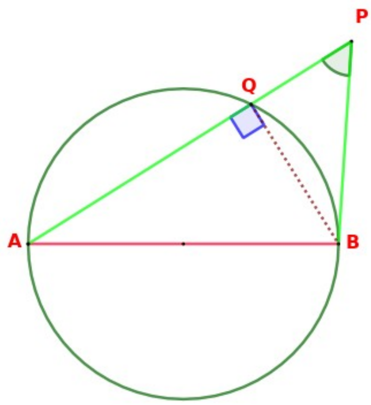
Draw a line of length 5 cm.
Draw a circle with this line as diameter.
Mark 3 points outside the circle. Join each points to the endpoints of the diameter.
Measure the angles so get and find the common property.

All angles are less than 90°.



Proof :-

AB is the diameter of the circle and P is a point outside the circle.
Join AP and BP.
Q is a point on the circle where AP meet the circle. Join BQ.
Since angle in a semicircle is 90°,
$\angle AQB = 90°$
Consider the ΔBQP.
$\angle AQB$ is an outer angle of ΔBQP.
Therefore, $\angle AQB = \angle APB + \angle PBQ$
$90° = \angle APB + \angle PBQ$
which means $\angle APB$ is less than 90° ($\angle APB < 90°$)



If we join the ends of the diameter of a circle to a point outside the circle gives an angle less than 90°

Note :

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 .