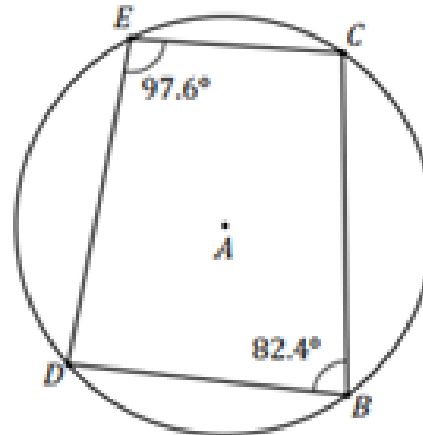


Consider the figure below that represents an inscribed polygon.



What figure is inscribed in the circle?

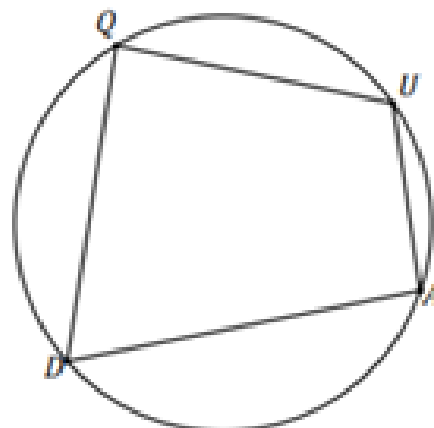
What do you notice about the angles?

quadrilateral  
Supplementary

A polygon is inscribed in a circle when all vertices of the polygon lie on the circle. The circle is circumscribed about the circle.

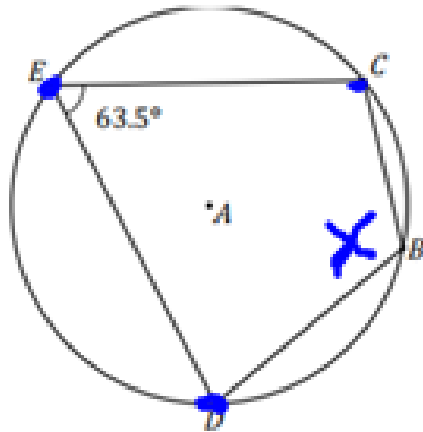
In a circumscribed quadrilateral every vertex is on the circumference of a circle, and the opposite angles of the quadrilateral are Supplementary.

Which pair of angles are supplementary?



$$m\angle Q + m\angle A = 180$$
$$m\angle D + m\angle U = 180$$

Find  $m\angle CBD$  &  $m\widehat{CD}$



$$\begin{aligned} &= \frac{180}{-63.5} \\ &116.5 = m\angle CBD \\ &63.5(2) = 127^\circ \\ &= m\widehat{CD} \end{aligned}$$

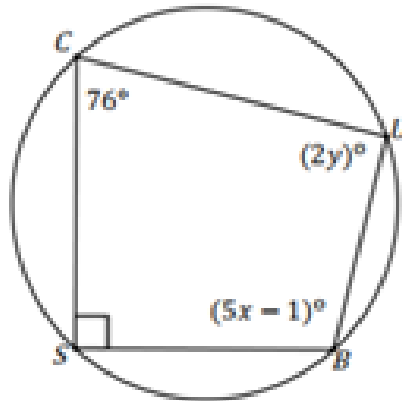
Four turn:

$$2y + 90 = 180$$

$$-90 \quad -90$$

Find the value of each variable.

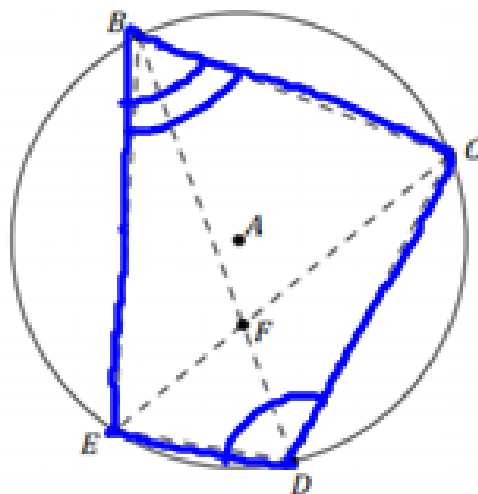
$$y = 45$$



$$\begin{aligned} 76 + 5x - 1 &= 180 \\ 75 + 5x &= 100 \\ -75 \quad -75 \\ 5x &= 25 \\ \boxed{x = 5} \end{aligned}$$

### Informal Assessment:

Quadrilateral  $BCDE$  is inscribed in circle  $A$ . Diagonals  $\overline{BD}$  and  $\overline{EC}$  intersect at point  $F$ .



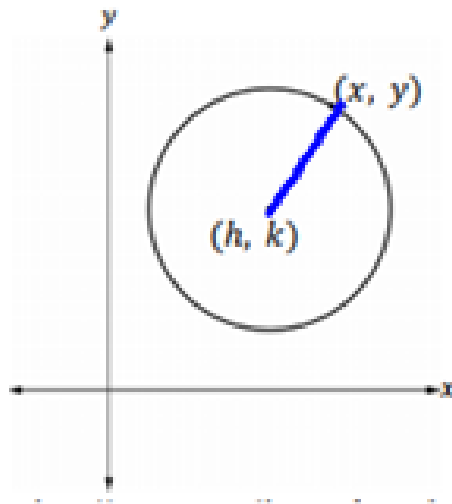
Select the angles and value that would make the statement true about quadrilateral  $BCDE$ .

$m\angle$   $EDC$  =  $180$  -  $m\angle$   $EBC$

~~$EDF$~~   
 $EDC$   
 ~~$EDF$~~   
 ~~$CFD$~~   
 ~~$FED$~~

~~$180$~~   
 $180^\circ$

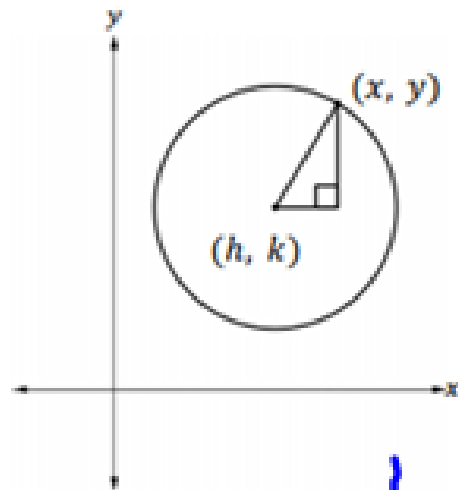
$EBC$   
 ~~$EDF$~~   
 ~~$EDF$~~   
 ~~$CFD$~~   
 ~~$FED$~~



To find the radius, you can use the distance formula

$$r = \sqrt{(x-h)^2 + (y-k)^2}$$

Now, we find the length of the hypotenuse and the horizontal and vertical legs of the triangle.



Horizontal leg length:  $|x-h|$

Vertical leg length:  $|y-k|$

Hypotenuse length:  $r$

Substitute these lengths into the Pythagorean Theorem.

$$(x-h)^2 + (y-k)^2 = r^2$$

This is the Standard form for the equation of a circle with center  $(h, k)$  and radius  $r$ .