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### 11.5 Homework: Inscribed angle theorem

1. A square is inscribed in a circle with a radius  $r = 6$ . Find each:

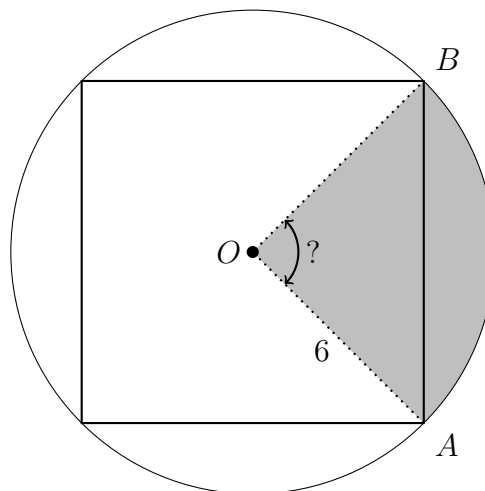
(a)  $m\angle AOB$

(e) The sector area (in gray)

(b) The circle circumference. ( $C = 2\pi r$ )

(c) The length of the arc  $\widehat{AB}$

(d) The circle's area. ( $A = \pi r^2$ )

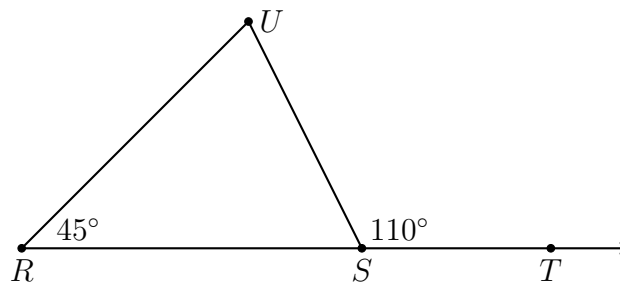


2. Given  $m\angle R = 45$  and  $m\angle UST = 110$ .

(a) Are  $\angle RSU$  and  $\angle UST$  supplementary, complementary, or neither?

(c) Find  $m\angle U$ .

(b) Find  $m\angle RSU$ .



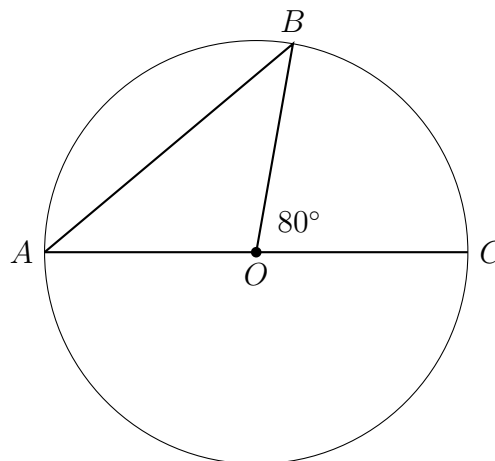
3. Given circle  $O$ , diameter  $\overline{AC}$ , radius  $\overline{BO}$ , and central angle  $m\angle BOC = 80^\circ$ .

(a) How do we know  $\overline{AO} \cong \overline{BO} \cong \overline{CO}$ ?

(b) What is the degree measure  $m\widehat{BC}$ ?

(c) Find  $m\angle AOB$ .

(d) How do we know  $\angle A \cong \angle B$ ?

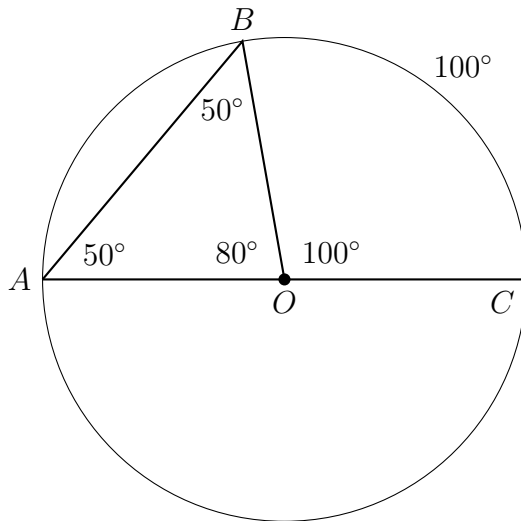


4. Given circle  $O$ , with inscribed angle  $\angle BAC$  and central angle  $\angle BOC$  having the same intercepted arc,  $m\widehat{BC} = 100^\circ$ .

(a)  $m\angle BOC = 100^\circ$  and therefore  
 $m\angle AOB = 80^\circ$  (linear pair)

(b)  $\triangle AOB$  is isosceles therefore  
 $m\angle A = m\angle B = 50^\circ$

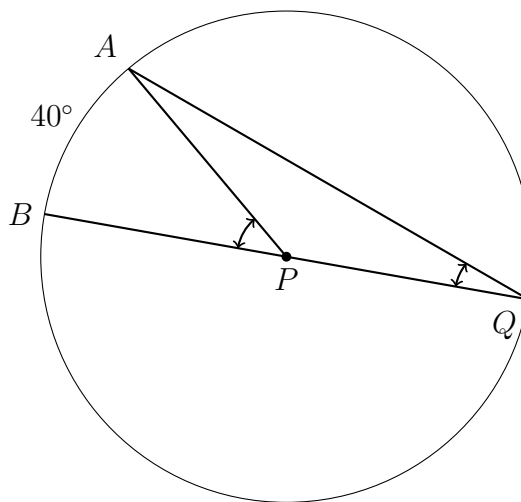
(c) Theorem:  
 The measure of an inscribed angle is *half* of the measure of its intercepted arc.



5. Given circle  $P$  with  $m\widehat{AB} = 40^\circ$ .

(a) Write down the  $m\angle APB$ .

(b) Find the  $m\angle AQB$ .

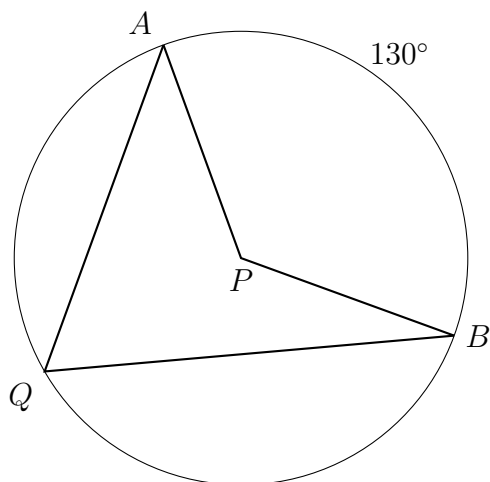


6. Given circle  $P$  with  $m\widehat{AB} = 130^\circ$ .

(a) Write down the  $m\angle APB$ .

(b) Find the  $m\angle AQB$ .

Name:



7. Given circle  $O$ , diameters  $\overline{AC}$  and  $\overline{BD}$ , and arc measure  $m\widehat{BC} = 70^\circ$ .

(a) How do we know  $\angle AOD \cong \angle BOC$ ?

(b) What are the degree measures of  $m\angle BOC$  and  $m\angle AOD$ ?

(c) Write down  $m\widehat{AD}$ .

(d) Find  $m\widehat{AB}$

