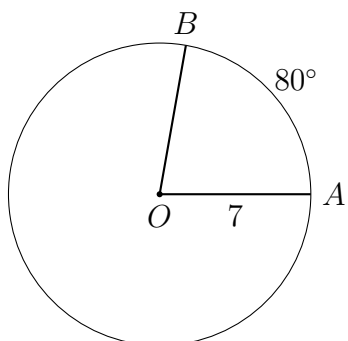


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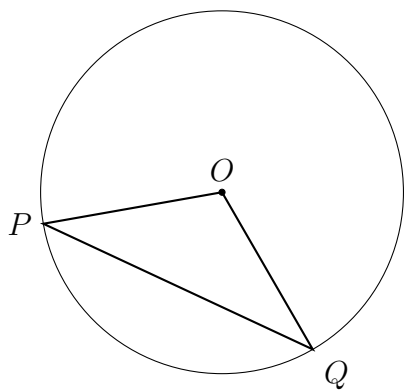
### 13.8 Homework: Circle situations & trigonometry

1. Circle  $O$  has a radius  $AO = 7$ , as shown below, and arc measure  $m\widehat{AB} = 80^\circ$ .



- (a) Find the  $m\angle AOB$ .
- (b) Find the length of the arc  $\widehat{AB}$ .
- (c) Find the area of the sector  $AOB$ .

2. Given circle  $O$  with points  $P$  and  $Q$  on the circle.  $m\angle POQ = 110$ . Find  $m\angle P$ .



3. Express each value to *the nearest tenth*.

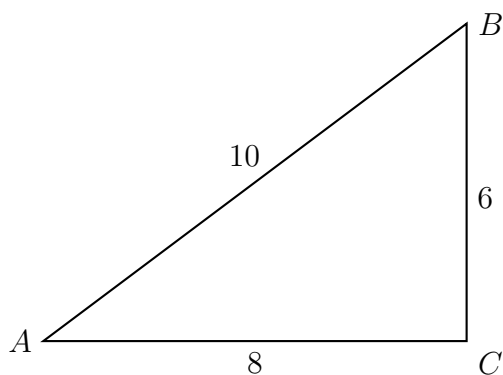
(a)  $\tan 76^\circ =$

(c)  $\tan^{-1} 1.73 =$

(b)  $\cos 36^\circ =$

(d)  $\sin^{-1} 0.5 =$

4.  $\triangle ABC$  has sides of length  $BC = 6$ ,  $AC = 8$ , and  $AB = 10$  as shown, with  $m\angle C = 90^\circ$ .



(a) Find  $\tan A =$

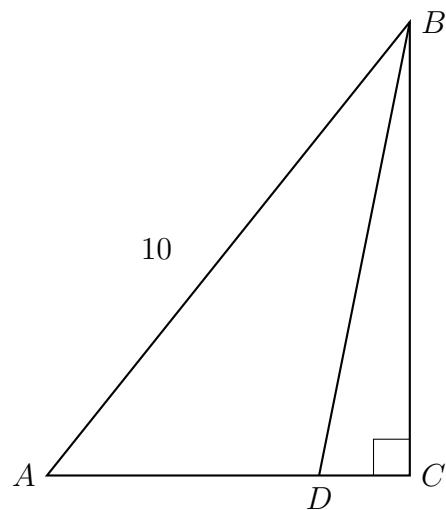
(b) Find  $\cos A =$

(c) Find  $\sin B =$

(d) Find  $m\angle A =$

5. Right  $\triangle ABC$  is drawn with point  $D$  on  $\overline{AC}$ .  $m\angle BAC = 40^\circ$ ,  $m\angle BDC = 80^\circ$ ,  $m\angle C = 90^\circ$ , and  $AC = 10$ .

Find  $BC$ . Now find  $CD$  and  $AD$ .



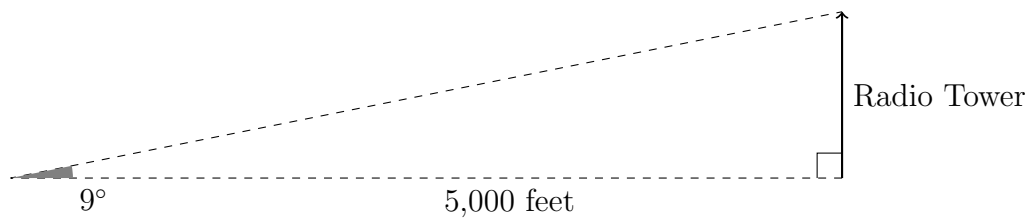
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6. In a right triangle, the acute angles have the relationship  $\sin(x) = \cos(60)$ .

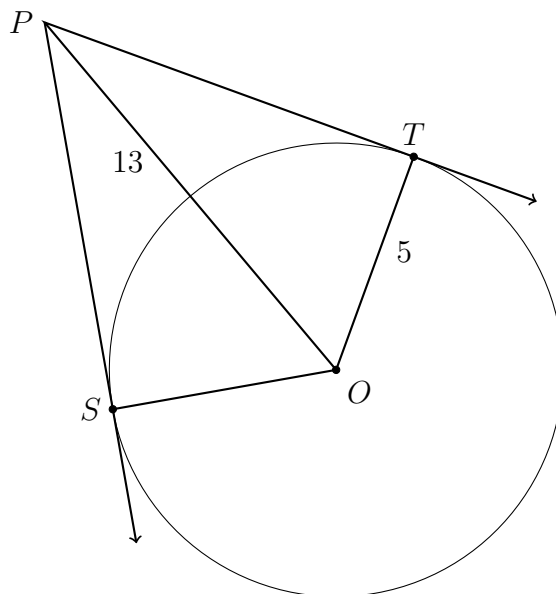
What is the value of  $x$ ?

7. If  $\sin(5x - 7)^\circ = \cos(3x + 17)^\circ$ , what is the value of  $x$ ?

8. A radio tower is 5,000 feet away, and the angle of elevation to its top is  $9^\circ$ . To the *nearest foot*, what is the height of the tower?



9. Circle  $O$  has a tangent lines  $\overleftrightarrow{PT}$  with point of tangency  $T$  and  $\overleftrightarrow{PS}$  with point of tangency  $S$ , as shown. If  $OP = 13$  and the radius of circle  $O$  is 5, what is the perimeter of quadrilateral  $PSOT$ ?



10. A pyramid with a square base is 8 cm tall, as shown. The slant length,  $VM = 10$ . Find the volume of the pyramid.

