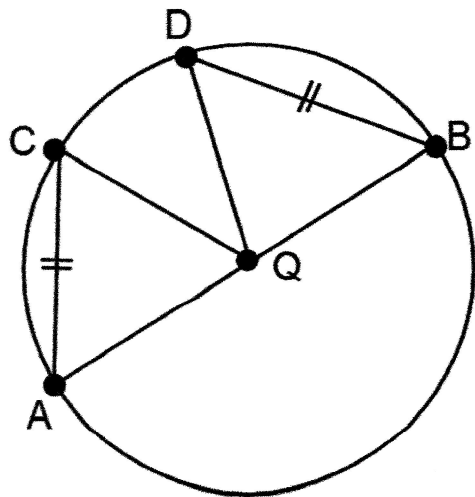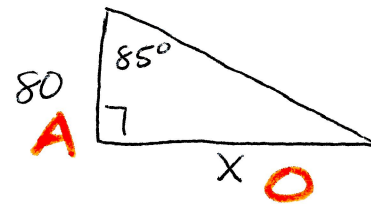1.  A park ranger at the top of a 80 foot tall lookout tower sees a wildfire in the distance with an angle of depression of $5°$.  How far away from the lookout tower is the wildfire?  Round to the nearest hundredth.

2. $\overline{AB}$ is a diameter and $\overline{AC} \cong \overline{BD}$ in $\odot Q$.  If $m\widehat{AC} = 70°$ find the measure of $\angle CQD$.



$m\angle CQD =$

Answers
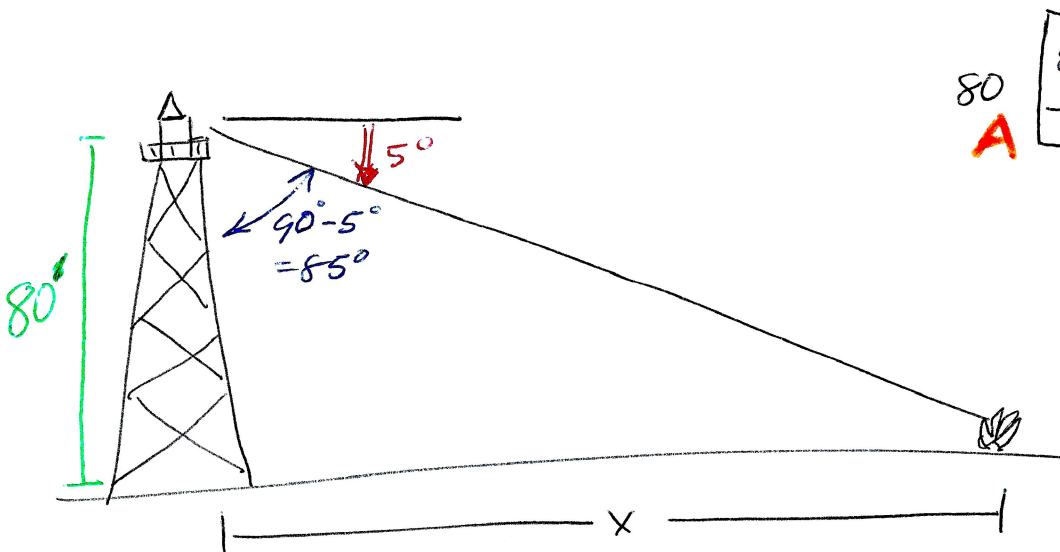
1. A park ranger at the top of a 80 foot tall lookout tower sees a wildfire in the distance with an angle of depression of 5°. How far away from the lookout tower is the wildfire? Round to the nearest hundredth.
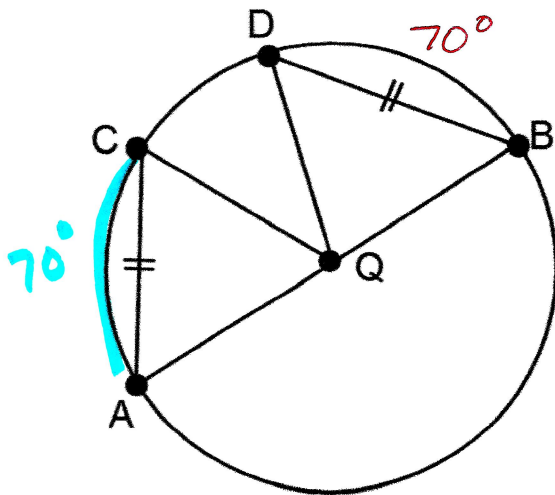
$5°$

$90° - 5°$
$= 85°$

80

80

$85°$

80

A

7

X

O

SOHCAH **TOA**

$\tan 85° = \dfrac{X}{80}$

$X = 80 \cdot \tan 85°$

$\boxed{X = 914.40 \text{ ft}}$

X

2. $\overline{AB}$ is a diameter and $\overline{AC} \cong \overline{BD}$ in $\odot Q$. If $m\widehat{AC} = 70°$ find the measure of $\angle CQD$.

D

$70°$

$70°$

C

B

Q

A

$m\angle CQD =$

• Since $\overline{AB}$ is a diameter $\widehat{ACB}$ is semicircle $(180°)$

• Since chords $\overline{AC}$ & $\overline{BD}$ are $\cong$ arcs $\widehat{AC}$ & $\widehat{DB}$ are also $\cong$. $m\widehat{DB} = 70°$

• $m\widehat{CD} = 180° - 70° - 70°$

$m\widehat{CD} = 40°$

$\angle CQD$ is the central $\angle$ for $\widehat{CD}$

$\boxed{m\angle CQD = m\widehat{CD} = 40°}$

1