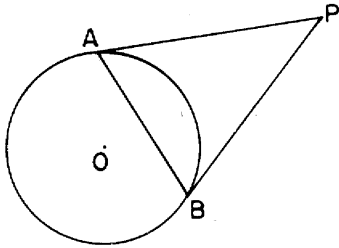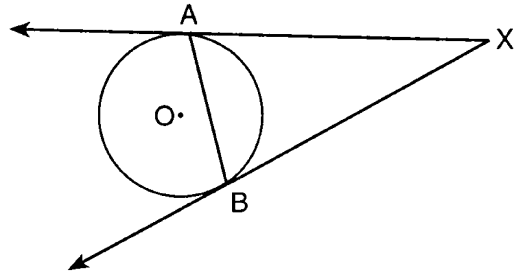## G.C.A.2: Chords, Secants and Tangents 13
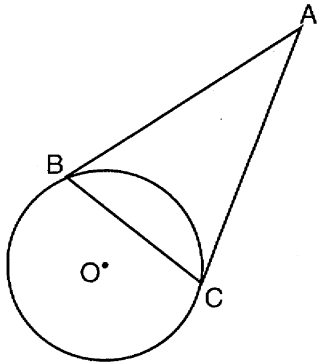
1   In the accompanying diagram, $\overline{PA}$ and $\overline{PB}$ are tangents drawn to circle O. If $m\angle PBA = 70$, find $m\angle P$.

3   In the accompanying diagram of circle O, $\overrightarrow{XA}$ and $\overrightarrow{XB}$ are tangents and $m\angle XAB = 75$. Find $m\angle X$.
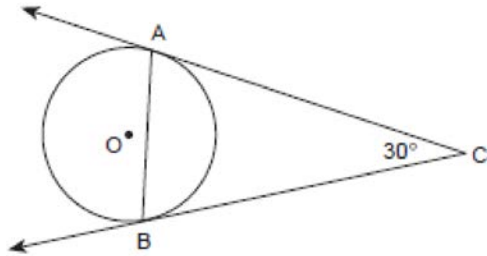
2   In the accompanying diagram, $\overline{AB}$ and $\overline{AC}$ are tangents to circle O, and chord $\overline{BC}$ is drawn. If $m\angle ABC = 72$, what is $m\angle A$?

4   From external point A, two tangents to circle O are drawn. The points of tangency are B and C. Chord $\overline{BC}$ is drawn to form $\triangle ABC$. If $m\angle ABC = 66$, what is $m\angle A$?
1)   33
2)   48
3)   57
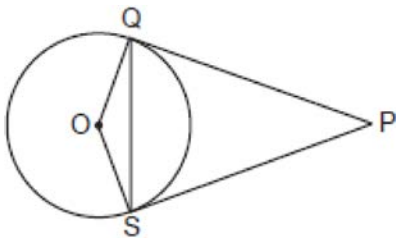4)   66

5   The accompanying diagram represents circular pond O with docks located at points A and B. From a cabin located at C, two sightings are taken that determine an angle of 30° for tangents $\overline{CA}$ and $\overline{CB}$..
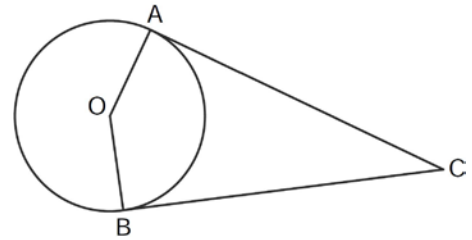

What is m$\angle CAB$?
1)   30
2)   60
3)   75
4)   150

6   In the accompanying diagram, $\overline{PQ}$ and $\overline{PS}$ are tangents drawn to circle O, and chord $\overline{OS}$ is drawn. If m$\angle P = 40$, what is m$\angle PQS$?

7   In the diagram below, $\overline{AC}$ and $\overline{BC}$ are tangent to circle O at A and B, respectively, from external point C.

If m$\angle ACB = 38$, what is m$\angle AOB$?
1)   71
2)   104
3)   142
4)   161

8   Tangents $\overline{PA}$ and $\overline{PB}$ are drawn to circle O from an external point, P, and radii $\overline{OA}$ and $\overline{OB}$ are drawn. If m$\angle APB = 40$, what is the measure of $\angle AOB$?
1)   140º
2)   100º
3)   70º
4)   50º

2

G.C.A.2: Chords, Secants and Tangents 13
Answer Section

1 ANS:
40

   REF: 018602siii
2 ANS:
36

   REF: 089601siii
3 ANS:
30

   REF: 019901siii
4 ANS: 2
$180 - 2(66) = 48$

   REF: 061513ge
5 ANS: 3

   Because tangents $\overline{CA}$ and $\overline{CB}$ meet at a common point, the tangents are of equal length. $\triangle ABC$ is an isosceles triangle with equal angles of 75° at A and B. $\dfrac{180 - 30}{2} = 75$

   REF: 010213b
6 ANS:
70

   REF: 080004siii
7 ANS: 3
$180 - 38 = 142$

   REF: 011419ge
8 ANS: 1   REF: 081012ge