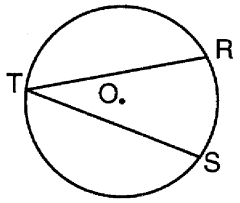
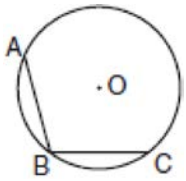
G.G.51: Arcs Determined by Angles 5: Investigate theorems about the arcs determined by angles intersecting a circle when the vertex is on the circle

1 In the accompanying diagram of circle O, the measure of $\overset{\frown}{RS}$ is 64°.



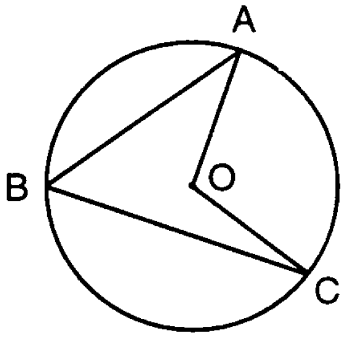
What is m$\angle RTS$?
1) 32
2) 64
3) 96
4) 128

2 In the accompanying diagram of circle O, m$\overset{\frown}{ABC}$ = 150.



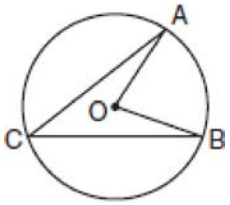
What is m$\angle ABC$?
1) 210
2) 105
3) 95
4) 75

3 In the accompanying diagram of circle O, m$\angle AOC$ = 108.



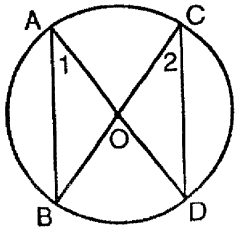
What is m$\angle ABC$?
1) 27
2) 54
3) 108
4) 216

4 In the accompanying diagram of circle O, m$\angle ACB$ = 38.



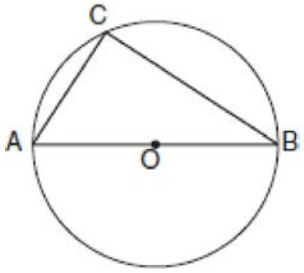
What is m$\angle AOB$?
1) 19
2) 38
3) 52
4) 76

5 In the accompanying diagram of circle O, $\overline{AD}$ and $\overline{BC}$ are diameters. Which statement is *not* true?



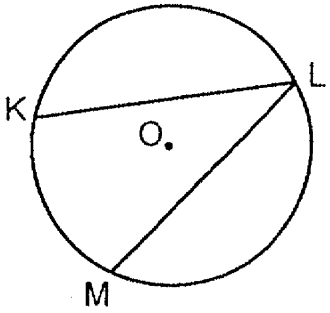
1) $\overline{AB} \cong \overline{CD}$
2) $\angle 1 \cong \angle 2$
3) $\overline{OA} \cong \overline{OD}$
4) $m\angle 1 = m\overset{\frown}{BD}$

6 In the accompanying diagram, ΔABC is inscribed in circle O and $\overline{AB}$ is a diameter.

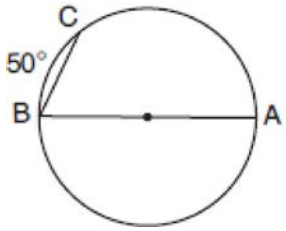


What is the number of degrees in $m\angle C$?
1) 30
2) 45
3) 60
4) 90

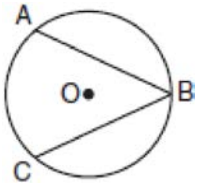
7 In the accompanying diagram of circle O, the measure of $\angle KLM$ is 38º. What is the number of degrees in the measure of $\overset{\frown}{KM}$?



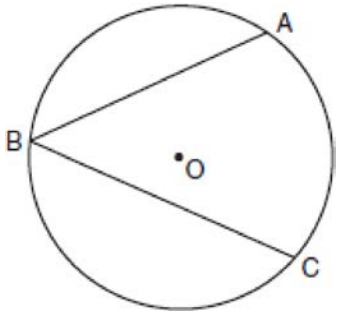
8 In the accompanying diagram, $\overline{BA}$ is a diameter and $m\overset{\frown}{BC} = 50$. Find $m\angle CBA$.



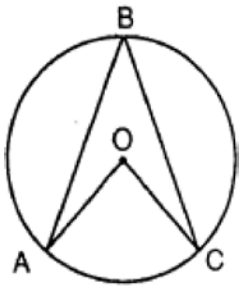
9 In the accompanying diagram of circle O, $m\overset{\frown}{ABC} = 260$. What is $m\angle ABC$?



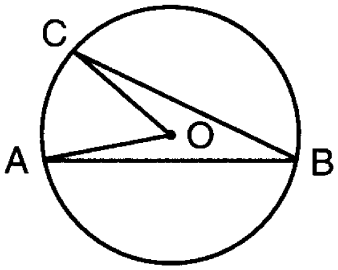
10 In the accompanying diagram of circle O, $m\angle ABC = 2x$ and $m\overset{\frown}{AC} = x + 60$. Find the value of x.



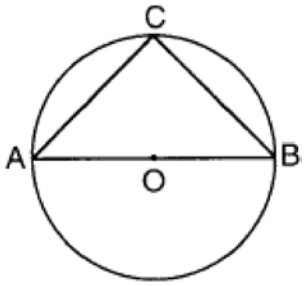
11 In the accompanying diagram of circle O, the measure of $\angle ABC$ is 42°. What is the total number of degrees in the measure of $\angle AOC$?



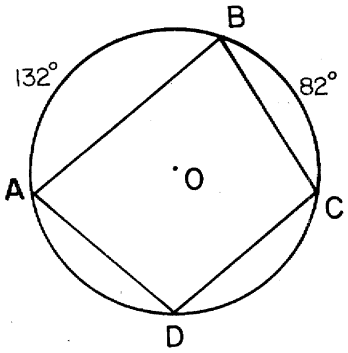
12 In the accompanying figure of circle O, $m\angle AOC = 52$. Find $m\angle ABC$.



13 In the accompanying diagram, isosceles triangle ABC is inscribed in circle O with diameter $\overline{AOB}$. Find $m\angle CAB$.



14 In the accompanying diagram, quadrilateral $ABCD$ is inscribed in circle O. If $m\overset{\frown}{AB} = 132$ and $m\overset{\frown}{BC} = 82$, find $m\angle ADC$.



15 An angle inscribed in a circle measures 80 degrees. What is the number of degrees in the intercepted arc?

16 In a circle, an inscribed angle intercepts an arc whose measure is $(14x - 2)°$. Express, in terms of x, the number of degrees in the measure of the inscribed angle.

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Answer Section

1 ANS: 1 REF: 019717siii
2 ANS: 2 REF: 080127siii
3 ANS: 2 REF: 089818siii
4 ANS: 4 REF: 010318siii
5 ANS: 4 REF: 089414siii
6 ANS: 4 REF: 010115siii
7 ANS: 76

REF: 019401siii
8 ANS: 65

REF: 010202siii
9 ANS: 50

REF: 080203siii
10 ANS: 20

REF: 010406siii
11 ANS: 84

REF: 089302siii
12 ANS: 26

REF: 069902siii
13 ANS: 45

REF: 010009siii
14 ANS: 107

REF: 088408siii
15 ANS: 160

REF: 060003siii

16 ANS:
$(7x - 1)°$

REF: 069507siii