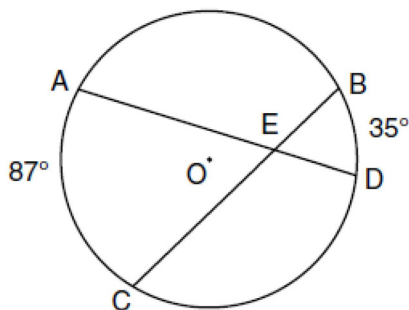


G.G.51: Arcs Determined by Angles 1: Investigate theorems about the arcs determined by angles intersecting a circle when the vertex is inside the circle

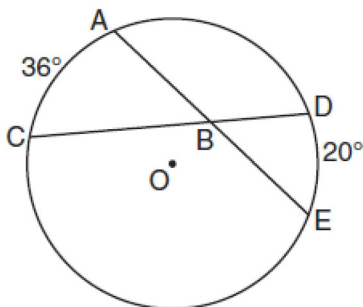
- 1 In the diagram below of circle O , chords \overline{AD} and \overline{BC} intersect at E , $m\widehat{AC} = 87$, and $m\widehat{BD} = 35$.



What is the degree measure of $\angle CEA$?

- 1) 87
- 2) 61
- 3) 43.5
- 4) 26

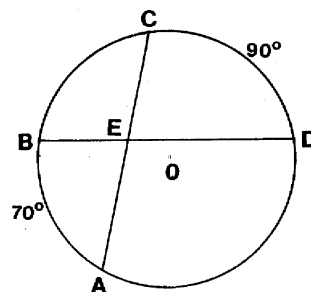
- 2 In the diagram below of circle O , chords \overline{AE} and \overline{DC} intersect at point B , such that $m\widehat{AC} = 36$ and $m\widehat{DE} = 20$.



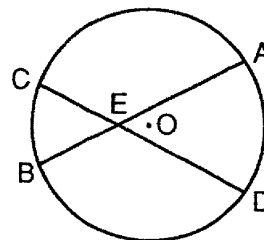
What is $m\angle ABC$?

- 1) 56
- 2) 36
- 3) 28
- 4) 8

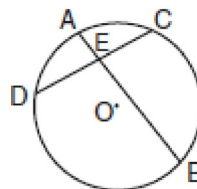
- 3 In the accompanying diagram, \overline{AC} and \overline{BD} are chords of circle O and intersect at E . If $m\widehat{AB} = 70$ and $m\widehat{CD} = 90$, find $m\angle BEA$.



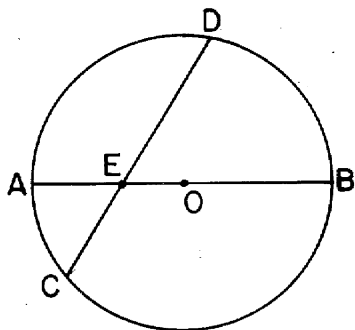
- 4 In the accompanying diagram, chords \overline{AB} and \overline{CD} intersect at E . If $m\widehat{AD} = 70$ and $m\widehat{BC} = 40$, find $m\angle AED$.



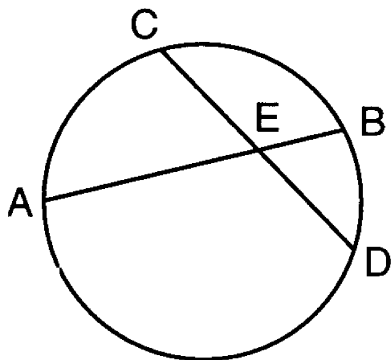
- 5 In the accompanying diagram of circle O , chords \overline{AB} and \overline{CD} intersect at E , $m\widehat{AC} = 50$, and $m\widehat{BD} = 150$. Find $m\angle AED$.



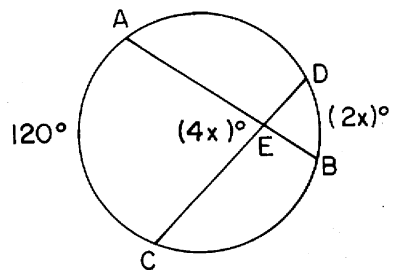
- 6 In the accompanying diagram, \overline{AB} is a diameter of circle O and chord \overline{CD} intersects diameter \overline{AB} at E . If $m\widehat{AD} = 100$ and $m\widehat{AC} = 40$, find $m\angle DEB$.



- 7 In the accompanying diagram, chords \overline{AB} and \overline{CD} intersect at E . If $m\widehat{AC} = 75$ and $m\widehat{DB} = 45$, find $m\angle AED$.

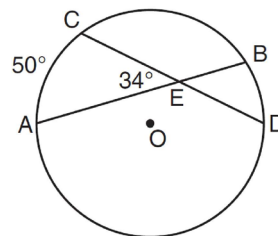


- 8 In the diagram below, chords \overline{AB} and \overline{CD} intersect at E . If $m\angle AEC = 4x$, $m\widehat{AC} = 120$, and $m\widehat{DB} = 2x$, what is the value of x ?



- 1) 12
- 2) 20
- 3) 30
- 4) 60

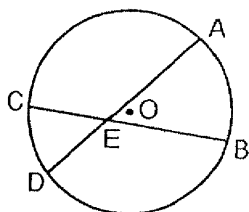
- 9 In the diagram below of circle O , chords \overline{AB} and \overline{CD} intersect at E .



If $m\angle AEC = 34$ and $m\widehat{AC} = 50$, what is $m\widehat{DB}$?

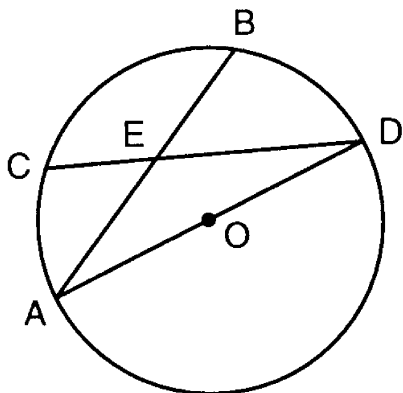
- 1) 16
- 2) 18
- 3) 68
- 4) 118

- 10 In the accompanying diagram of circle O , $m\widehat{AB} = 64$ and $m\angle AEB = 52$.

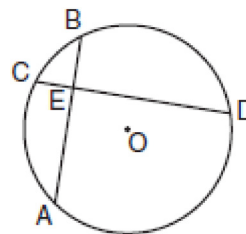


What is the measure of \widehat{CD} ?

- 1) 104°
 - 2) 80°
 - 3) 52°
 - 4) 40°
- 11 In the accompanying figure of circle O , chords \overline{AB} and \overline{CD} intersect at E and \overline{AD} is a diameter. If $m\widehat{CB} = 82$, find $m\angle AED$.

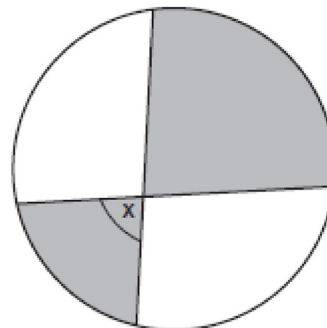


- 12 In the accompanying diagram of circle O , chords \overline{AB} and \overline{CD} intersect at E and $m\widehat{AC} : m\widehat{CB} : m\widehat{BD} : m\widehat{DA} = 4 : 2 : 6 : 8$.



What is $m\angle DEB$?

- 1) 36
 - 2) 90
 - 3) 100
 - 4) 126
- 13 The accompanying diagram shows a child's spin toy that is constructed from two chords intersecting in a circle. The curved edge of the larger shaded section is one-quarter of the circumference of the circle, and the curved edge of the smaller shaded section is one-fifth of the circumference of the circle.



What is the measure of angle x ?

- 1) 40°
- 2) 72°
- 3) 81°
- 4) 108°

G.G.51: Arcs Determined by Angles 1: Investigate theorems about the arcs determined by angles intersecting a circle when the vertex is inside the circle

Answer Section

1 ANS: 2 REF: 011015ge

2 ANS: 3

$$\frac{36+20}{2} = 28$$

REF: 061019ge

3 ANS:

80

REF: 018410siii

4 ANS:

55

REF: 069411siii

5 ANS:

80

REF: 060111siii

6 ANS:

60

REF: 088709siii

7 ANS:

120

REF: 089811siii

8 ANS: 2 REF: 018931siii

9 ANS: 2

$$\frac{50+x}{2} = 34$$

$$50+x = 68$$

$$x = 18$$

REF: 011214ge

10 ANS: 4 REF: 019429siii

11 ANS:

131

REF: 089915siii

12 ANS: 2 REF: 060221siii

13 ANS: 3 REF: 080408b