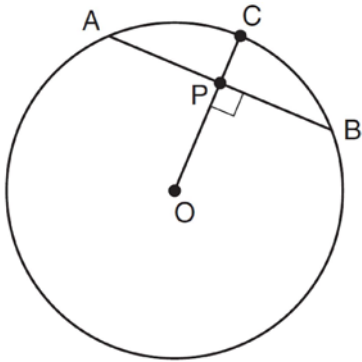


G.G.49: Chords 1: Investigate theorems regarding chords of a circle: perpendicular bisectors of chords; the relative lengths of chords compared to their distance from the center

- 1 In circle O , diameter \overline{AB} intersects chord \overline{CD} at E . If $CE = ED$, then $\angle CEA$ is which type of angle?
- 1) straight
 - 2) obtuse
 - 3) acute
 - 4) right

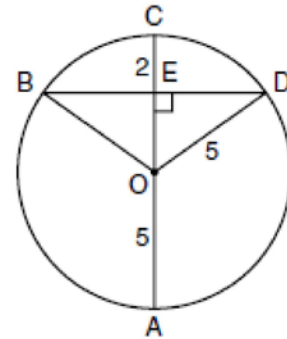
- 2 In the diagram below of circle O , radius \overline{OC} is 5 cm. Chord \overline{AB} is 8 cm and is perpendicular to \overline{OC} at point P .



What is the length of \overline{OP} , in centimeters?

- 1) 8
- 2) 2
- 3) 3
- 4) 4

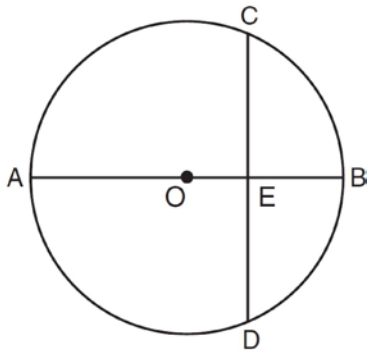
- 3 In the diagram below, circle O has a radius of 5, and $CE = 2$. Diameter \overline{AC} is perpendicular to chord \overline{BD} at E .



What is the length of \overline{BD} ?

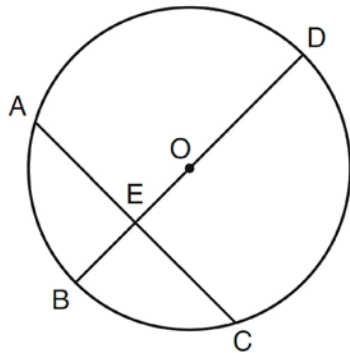
- 1) 12
- 2) 10
- 3) 8
- 4) 4

- 4 In the diagram below of circle O , diameter \overline{AOB} is perpendicular to chord \overline{CD} at point E , $OA = 6$, and $OE = 2$.



What is the length of \overline{CE} ?

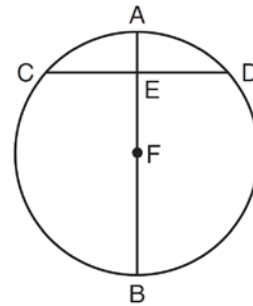
- 1) $4\sqrt{3}$
 - 2) $2\sqrt{3}$
 - 3) $8\sqrt{2}$
 - 4) $4\sqrt{2}$
- 5 In circle O shown below, diameter \overline{DB} is perpendicular to chord \overline{AC} at E .



If $DB = 34$, $AC = 30$, and $DE > BE$, what is the length of \overline{BE} ?

- 1) 8
- 2) 9
- 3) 16
- 4) 25

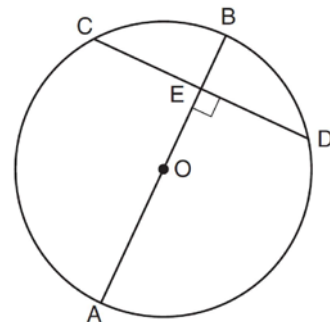
- 6 In the diagram below, diameter \overline{AB} bisects chord \overline{CD} at point E in circle F .



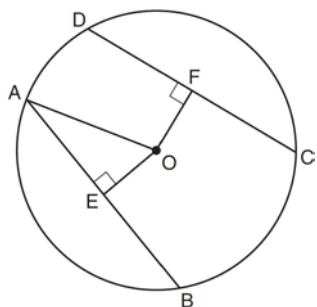
If $AE = 2$ and $FB = 17$, then the length of \overline{CE} is

- 1) 7
- 2) 8
- 3) 15
- 4) 16

- 7 In the diagram below of circle O , diameter \overline{AB} is perpendicular to chord \overline{CD} at E . If $AO = 10$ and $BE = 4$, find the length of \overline{CE} .

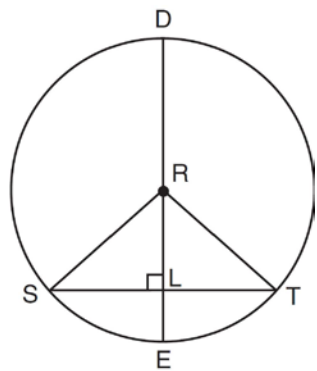


- 8 In circle O shown below, chords \overline{AB} and \overline{CD} and radius \overline{OA} are drawn, such that $\overline{AB} \cong \overline{CD}$, $\overline{OE} \perp \overline{AB}$, $\overline{OF} \perp \overline{CD}$, $OF = 16$, $CF = y + 10$, and $CD = 4y - 20$.



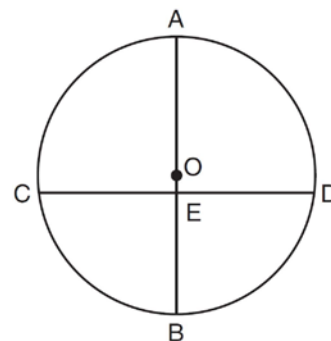
Determine the length of \overline{DF} . Determine the length of \overline{OA} .

- 9 In circle R shown below, diameter \overline{DE} is perpendicular to chord \overline{ST} at point L .



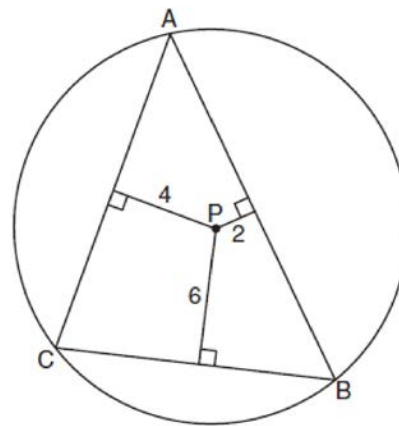
Which statement is *not* always true?

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



If $\overline{AB} \perp \overline{CD}$, which statement is always true?

- 1) $\widehat{AC} \cong \widehat{BD}$
 - 2) $\widehat{BD} \cong \widehat{DA}$
 - 3) $\widehat{AD} \cong \widehat{BC}$
 - 4) $\widehat{CB} \cong \widehat{BD}$
- 11 In the diagram below, $\triangle ABC$ is inscribed in circle P . The distances from the center of circle P to each side of the triangle are shown.



Which statement about the sides of the triangle is true?

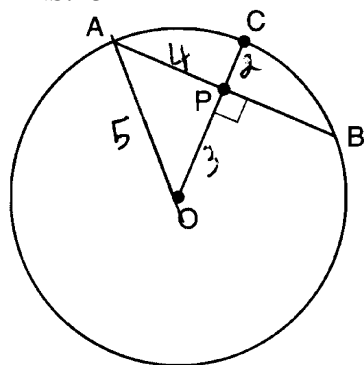
- 1) $\overline{SL} \cong \overline{TL}$
 - 2) $\overline{RS} = \overline{DR}$
 - 3) $\overline{RL} \cong \overline{LE}$
 - 4) $(DL)(LE) = (SL)(LT)$
- 1) $AB > AC > BC$
 - 2) $AB < AC$ and $AC > BC$
 - 3) $AC > AB > BC$
 - 4) $AC = AB$ and $AB > BC$

G.G.49: Chords 1: Investigate theorems regarding chords of a circle: perpendicular bisectors of chords; the relative lengths of chords compared to their distance from the center

Answer Section

1 ANS: 4 REF: 081308ge

2 ANS: 3



REF: 011112ge

3 ANS: 3

Because OC is a radius, its length is 5. Since $CE = 2$ $OE = 3$. $\triangle EDO$ is a 3-4-5 triangle. If $ED = 4$, $BD = 8$.

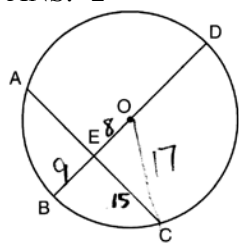
REF: fall0811ge

4 ANS: 4

$$\sqrt{6^2 - 2^2} = \sqrt{32} = \sqrt{16} \sqrt{2} = 4\sqrt{2}$$

REF: 081124ge

5 ANS: 2



$$\sqrt{17^2 - 15^2} = 8. \quad 17 - 8 = 9$$

REF: 061221ge

6 ANS: 2

$$\sqrt{17^2 - 15^2} = \sqrt{289 - 225} = \sqrt{64} = 8$$

REF: 011424ge

7 ANS:

$$EO = 6. \quad CE = \sqrt{10^2 - 6^2} = 8$$

REF: 011234ge

8 ANS:

$$2(y + 10) = 4y - 20. \quad \overline{DF} = y + 10 = 20 + 10 = 30. \quad \overline{OA} = \overline{OD} = \sqrt{16^2 + 30^2} = 34$$

$$2y + 20 = 4y - 20$$

$$40 = 2y$$

$$20 = y$$

REF: 061336ge

9 ANS: 3

REF: 011322ge

10 ANS: 4

REF: 081403ge

11 ANS: 1

The closer a chord is to the center of a circle, the longer the chord.

REF: 011005ge