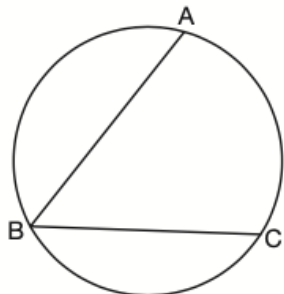


R.3 Chords and secants

1. Inscribe angle measure

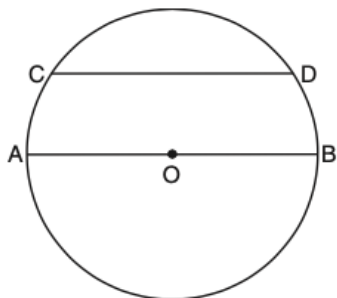
In the diagram below, $m\widehat{ABC} = 268^\circ$.



What is the number of degrees in the measure of $\angle ABC$?

2. Arc measures

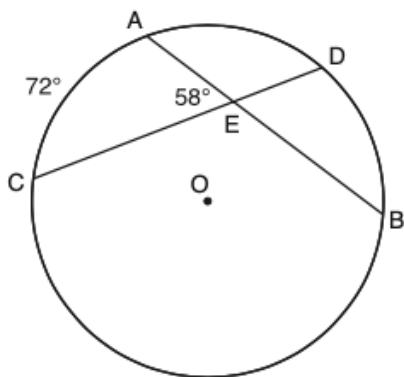
In the diagram below of circle O , chord \overline{CD} is parallel to diameter \overline{AB} and $m\widehat{CD} = 130$.



What is $m\widehat{AC}$?

3. Chord angle measure situation

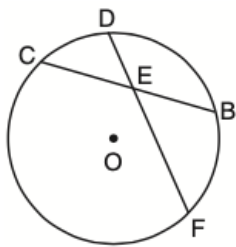
In the diagram below of circle O , chords \overline{AB} and \overline{CD} intersect at E .



If $m\widehat{AC} = 72^\circ$ and $m\angle AEC = 58^\circ$, how many degrees are in $m\widehat{DB}$?

4. Chord length situation

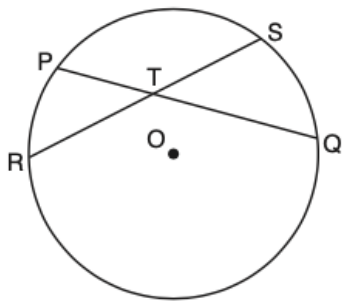
In the diagram below of circle O , chord \overline{DF} bisects chord \overline{BC} at E .



If $BC = 12$ and FE is 5 more than DE , then FE is

5. Chord length situation

In the diagram below, chords \overline{PQ} and \overline{RS} of circle O intersect at T .

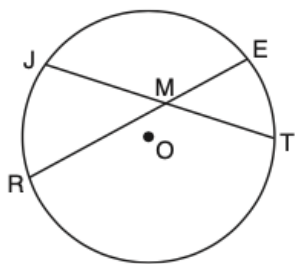


Which relationship must always be true?

- | | |
|---------------|-----------------------------------|
| (1) $RT = TQ$ | (3) $RT + TS = PT + TQ$ |
| (2) $RT = TS$ | (4) $RT \times TS = PT \times TQ$ |

6. Chord length situation

In the diagram below of circle O , chords \overline{JT} and \overline{ER} intersect at M .

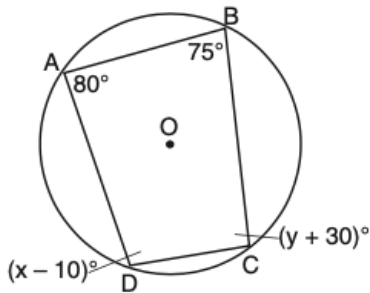


If $EM = 8$ and $RM = 15$, the lengths of \overline{JM} and \overline{TM} could be

- | | |
|----------------|----------------|
| (1) 12 and 9.5 | (3) 16 and 7.5 |
| (2) 14 and 8.5 | (4) 18 and 6.5 |

7. Inscribe angle measures situation

Quadrilateral $ABCD$ is inscribed in circle O , as shown below.

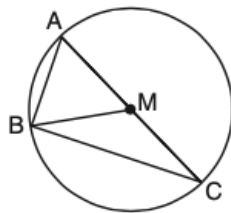


If $m\angle A = 80^\circ$, $m\angle B = 75^\circ$, $m\angle C = (y + 30)^\circ$, and $m\angle D = (x - 10)^\circ$, which statement is true?

- (1) $x = 85$ and $y = 50$ (3) $x = 110$ and $y = 75$
 (2) $x = 90$ and $y = 45$ (4) $x = 115$ and $y = 70$

8. Semicircle-inscribed triangle angle measure situation

In circle M below, diameter \overline{AC} , chords \overline{AB} and \overline{BC} , and radius \overline{MB} are drawn.

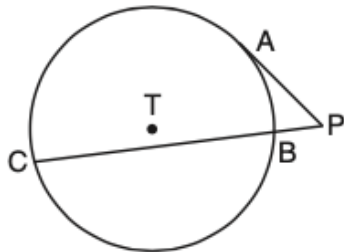


Which statement is *not* true?

- (1) $\triangle ABC$ is a right triangle. (3) $m\widehat{BC} = m\angle BMC$
 (2) $\triangle ABM$ is isosceles. (4) $m\widehat{AB} = \frac{1}{2}m\angle ACB$

9. Secant / tangent length situation

In the diagram shown below, \overline{PA} is tangent to circle T at A , and secant \overline{PBC} is drawn where point B is on circle T .



If $PB = 3$ and $BC = 15$, what is the length of \overline{PA} ?

10. Secant angle situation

In circle O two secants, \overline{ABP} and \overline{CDP} , are drawn to external point P . If $m\widehat{AC} = 72^\circ$, and $m\widehat{BD} = 34^\circ$, what is the measure of $\angle P$?