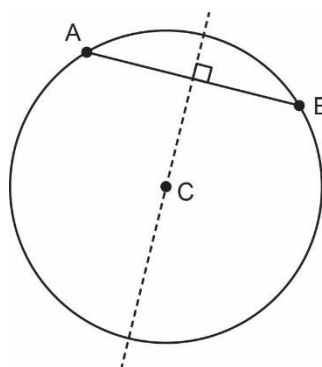


Geometry
Unit 1 Line Master 5a

Investigating Circle Properties and Constructions

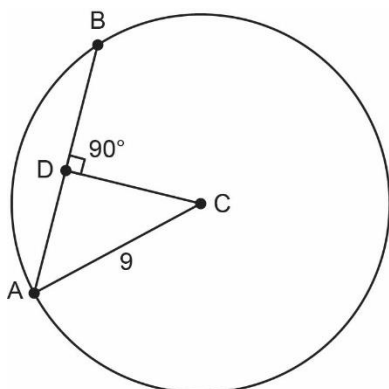
Exploring Chords in a Circle

- Use a compass to construct a circle on paper or tracing paper. Label the centre C.
- Construct chord \overline{AB} that is not a diameter.
- Fold the circle so that point A coincides with point B.
- What do you notice about the fold?

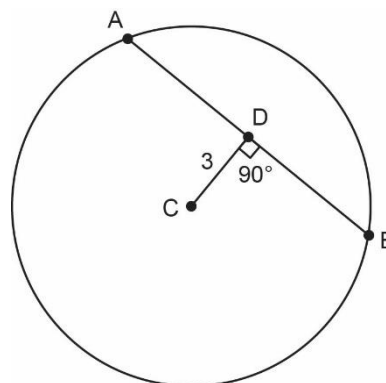


Application

- a) The radius of this circle is 9.
The length of chord \overline{AB} is 12.
How far is the chord from the centre of the circle?
(i.e., What is the length of \overline{CD} ?)
(Answer to the nearest tenth)



- b) The radius of this circle is 6.
The length of \overline{CD} is 3.
What is the length of chord \overline{AB} ?
(Answer to the nearest tenth)

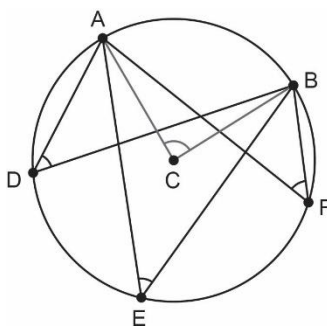


Geometry
Unit 1 Line Master 5b

Investigating Circle Properties and Constructions (cont'd)

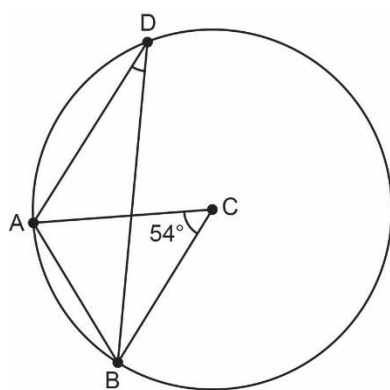
Exploring Angles and Arcs

- Use a compass to construct a circle. Label the centre C.
- Place points A and B on the circle to create minor arc \widehat{AB} .
- Add points D, E, and F on the circle (not between the minor arc AB) and join segments to create inscribed angles $\angle ADB$, $\angle AEB$, and $\angle AFB$.
- Use a protractor to measure these angles. What do you notice?
- Construct and measure central angle $\angle ACB$. What do you notice?

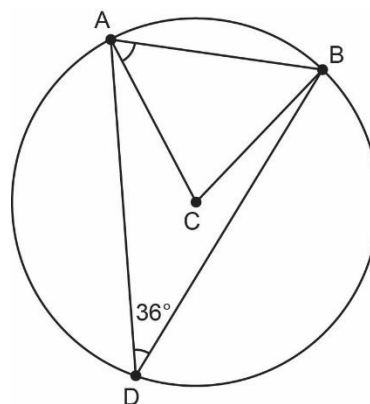


Application

- a) Point C is the centre of the circle.
Determine the measure of $\angle ADB$.



- b) Point C is the centre of the circle.
Determine the measure of $\angle CAB$.

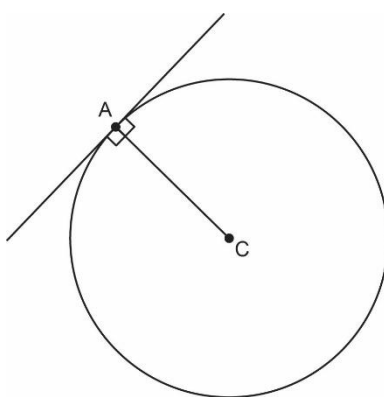


Geometry
Unit 1 Line Master 5c

Investigating Circle Properties and Constructions (cont'd)

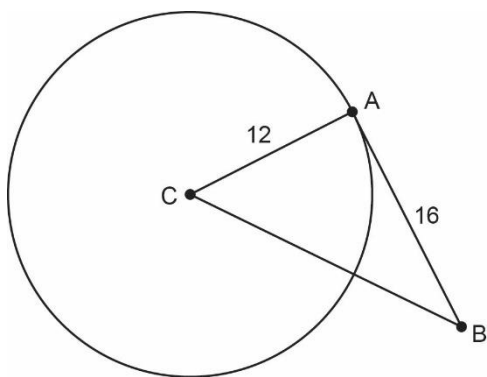
Exploring Tangents to a Circle

- Use a compass to construct a circle. Label the centre C.
- Construct a radius \overline{AC} .
- Use a protractor to construct 90° angles on both sides of the radius at point A, and extend the line.
- What do you notice about the line in relation to the circle?



Application

- a) \overline{AB} is tangent to the circle at Point A.
The radius of the circle is 12,
and $AB = 16$.
What is the length of \overline{BC} ?



- b) \overline{BD} is tangent to the circle at Point A.
The radius of the circle is 3.
If $BC = 4.5$ and $DC = 3.5$,
what is the length of \overline{BD} ?
(Answer to the nearest tenth)

