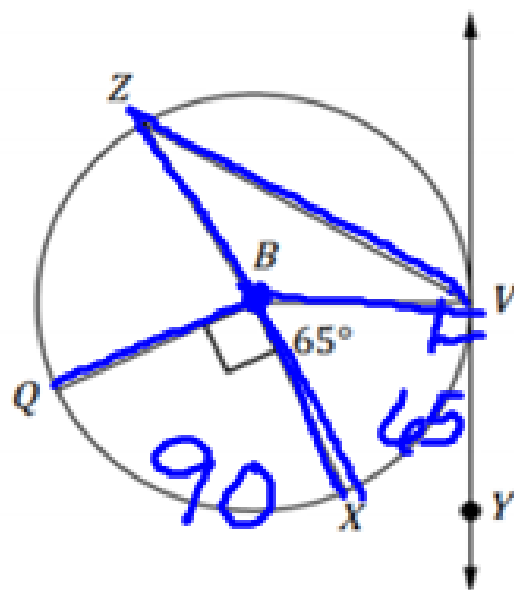
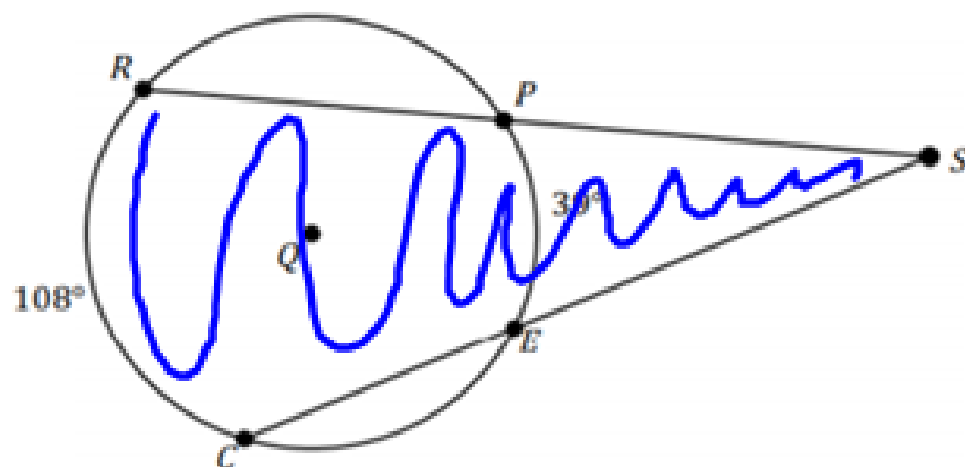


4. Find each of the following angles and arcs formed in circle B .

- a. $m\angle YVB = 90^\circ$
 b. $m\widehat{VX} = 65$
 c. $m\angle VZX = 32.5$
 d. $m\widehat{VQ} = 155$



Consider the diagram below where $\angle RSC$ is formed by two secants intersecting outside of circle Q .



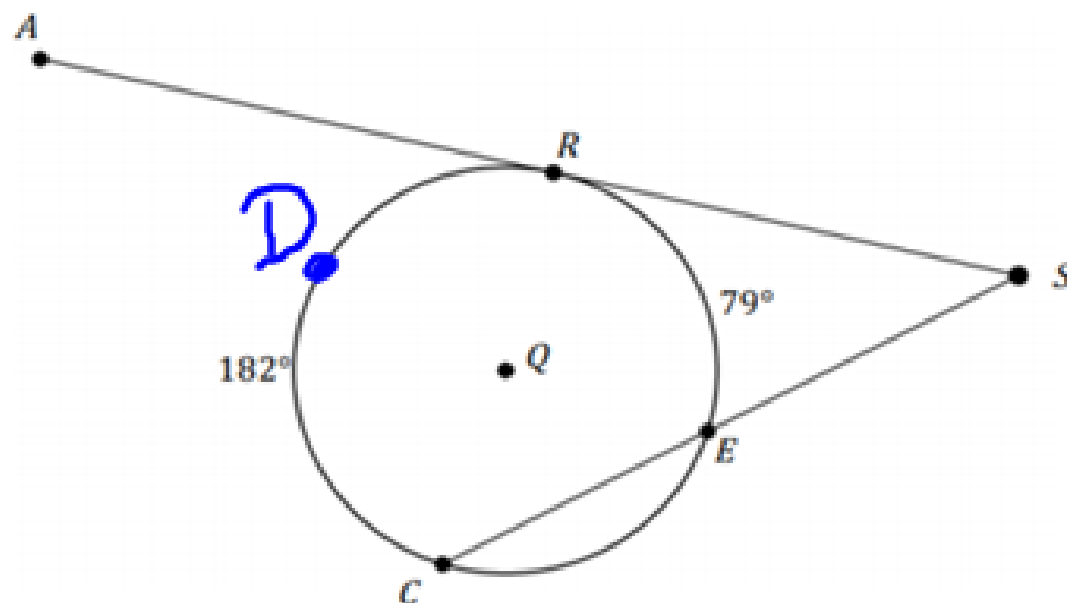
Identify the intercepted arcs.

$$\widehat{PE} \cong \widehat{RC}$$

Determine $m\angle RSC$.

$$m\angle RSC = \frac{1}{2}(108 - 39)$$
$$= 34.5$$

1. Consider the diagram below, where $\angle ASC$ is formed by a tangent line and a secant line intersecting outside of circle Q .



- a. What are the intercepted arcs in the above diagram?

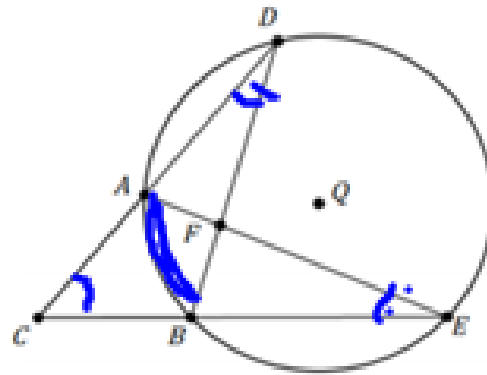
\widehat{RE} & \widehat{RDC}

- b. Determine $m\angle ASC$.

$$m\angle ASC = \frac{1}{2}(182 - 79)$$
$$= 51.5$$

Informal Assessment:

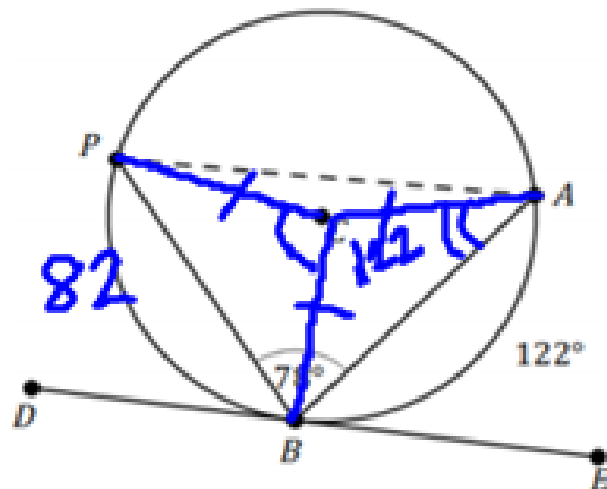
1. Consider the diagram below.



Which of the following statements is correct?

- A $\triangle DCB \sim \triangle ECA$ by Angle-Angle Similarity
- B $\angle ACB \cong \angle BFA$ by definition of an angle formed by two secants intersecting outside of a circle
- C $\angle DAF \cong \angle CBF$ by Alternate Interior Angles Theorem
- D $m\angle BFE = m\widehat{BE}$ by definitions of central angles and inscribed angles

2. Consider the diagram below.



If triangles PCB and ACB are constructed, what are the measures of $\angle PCB$ and $\angle CAB$?

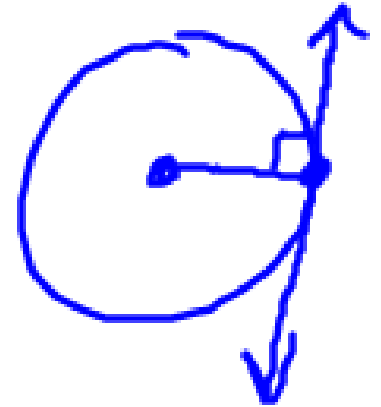
$m\angle PCB =$

$m\angle CAB =$

$$\begin{array}{r} 180 \\ - 122 \\ \hline 58 \div 2 \end{array}$$

Tangent Theorem

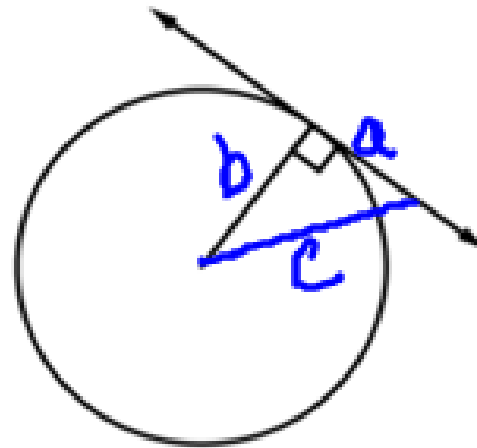
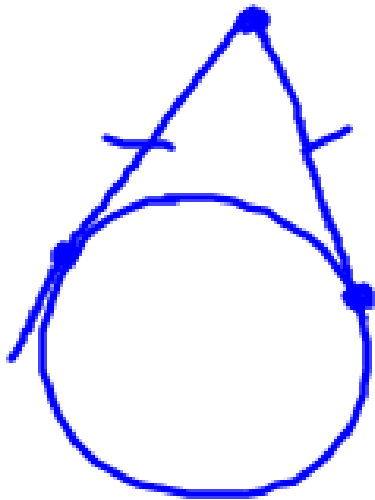
If a line is tangent to a circle, then the line is perpendicular to the radius from the point of tangency.



Converse:

If a line in the plane of the circle is perpendicular to a radius at its endpoint on the circle, then the line is tangent to the circle.

How could we prove the Tangent Theorem using the figure below?



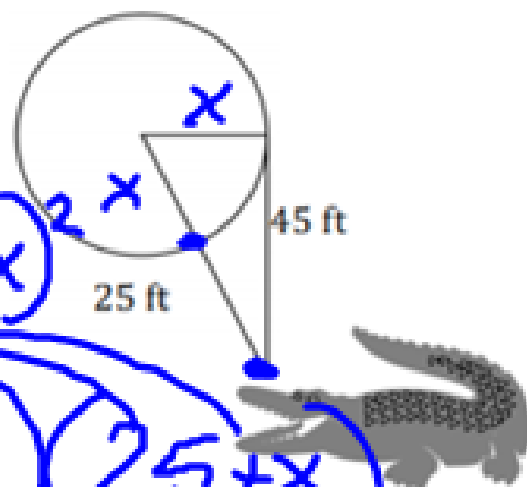
Pythagorean Theorem
 $a^2 + b^2 = c^2$

Tangent Segments Theorem

If two segments are tangent to the same exterior point, they are congruent.

Let's Practice!

3. Albert the Alligator is sunning himself next to his favorite, perfectly circular pond. He is 25 feet from the bank and 45 feet from the point of tangency. Determine the radius of Albert's favorite pond using the given information.



$$45^2 + x^2 = (25+x)^2$$

$$2025 + x^2 = (25+x)(25+x)$$

$$2025 + x^2 = 625 + 25x + 25x + x^2$$

$$\cancel{2025 + x^2} = 625 + 50x + \cancel{x^2}$$

$$\begin{array}{r} -625 \\ \hline 1400 = 50x \end{array}$$

$$x = 28$$