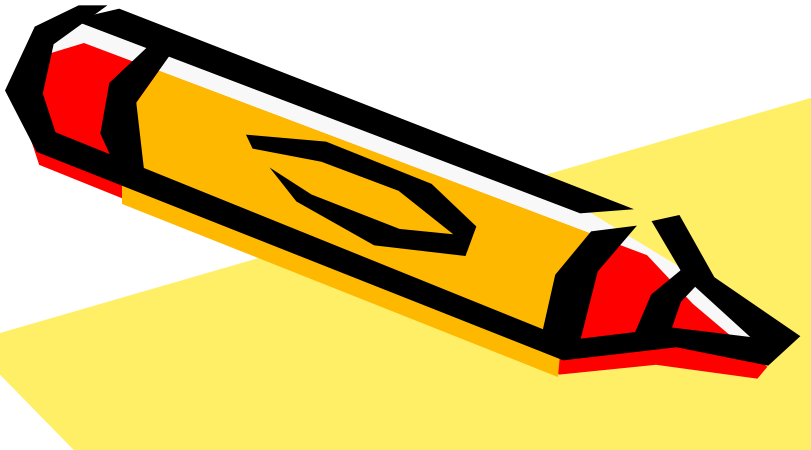


Geometry

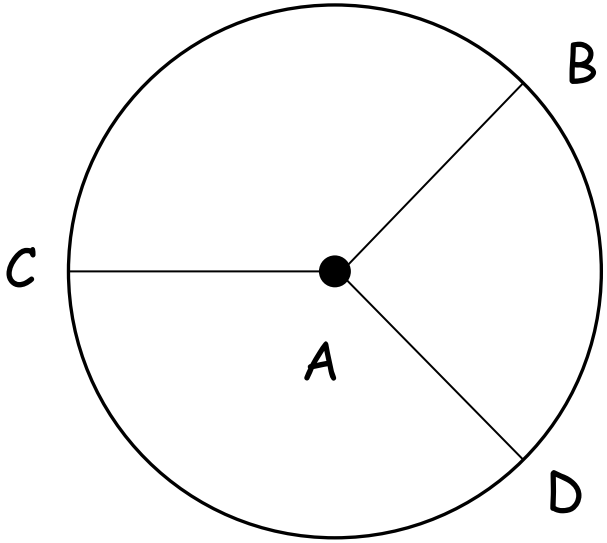
Exploring Circles

Vocabulary

Circle – the set of points equidistant from a given point, called the center. Circles are named by their center.

For example: circle A, $\odot A$

Radius – a segment with one endpoint at the center and the other on the circle. All radii of a circle are congruent.



$\overline{AC} \cong \overline{AB} \cong \overline{AD}$

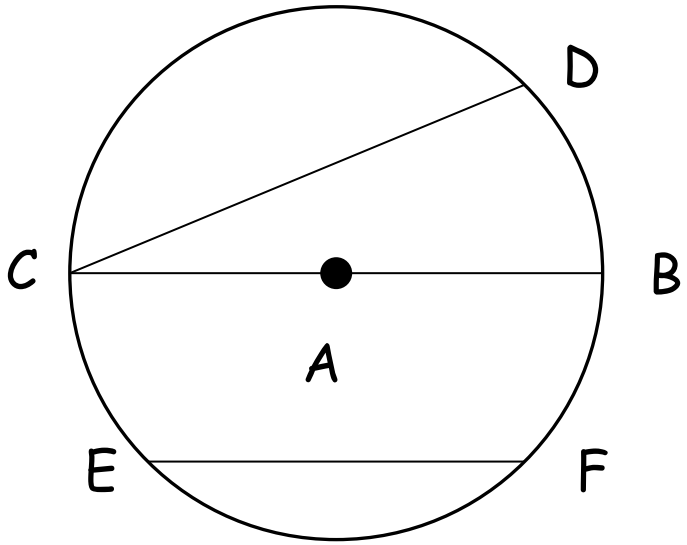
Each is a radius of $\odot A$

The interior of the circle constitutes its area.

Vocabulary

Chord – a segment whose two endpoints lie on the circle

Diameter – a chord that passes through the center of a circle. The diameter is the longest chord of the circle. The diameter is formed by two radii, therefore d = 2r.



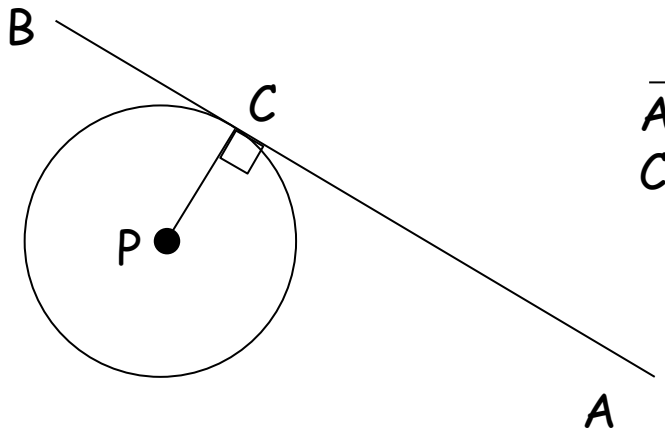
Vocabulary

Tangent - A line that intersects the circle at exactly one point.

A tangent will always look like a line resting on the circle.
It will never cross into the circle (even if it is extended).

The point where the tangent line touches the circle is known as the point of tangency.

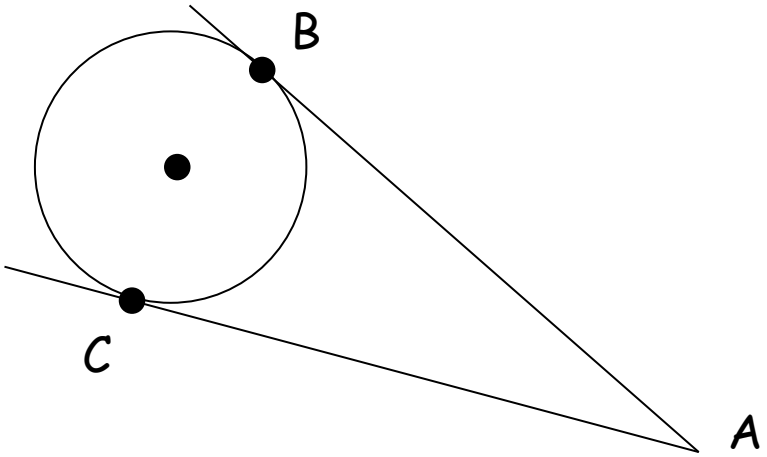
The tangent is perpendicular to the radius, at the point of tangency.



$\overline{AB}$ is a tangent.
C is the point of tangency.

Vocabulary

If two segments from the same exterior point are tangent to a circle, then they are congruent to the point of tangency.

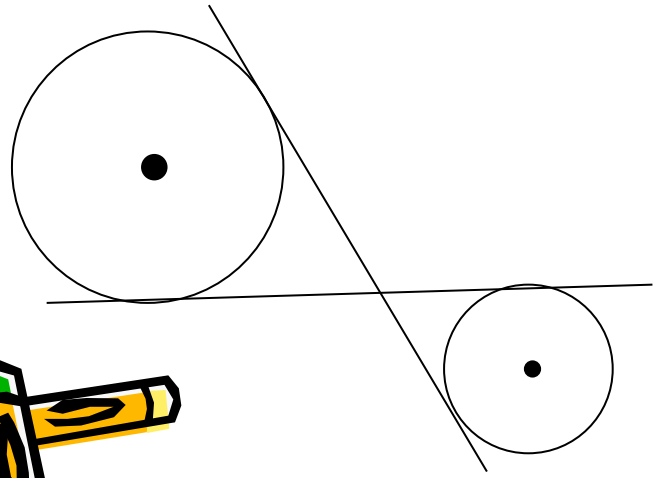


$\overline{AB} \cong \overline{AC}$

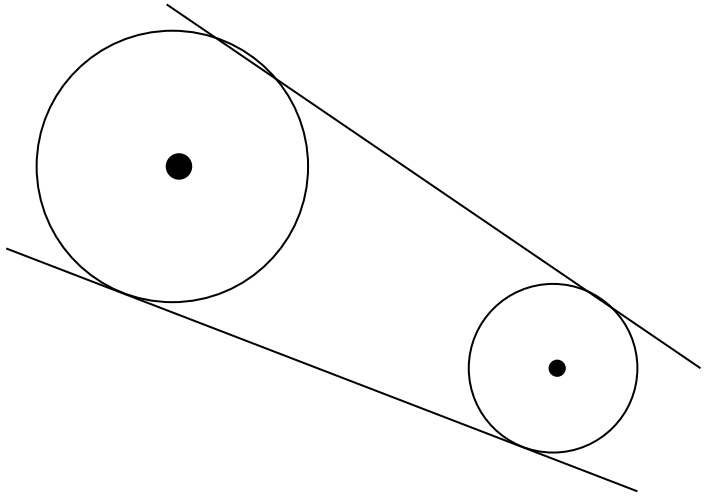
Vocabulary

Common Tangent - A common tangent is a line that is tangent to two or more circles.

<u>Common Internal Tangents</u>
Tangents that intersect between the circles



<u>Common External Tangents</u>
Tangents that do not intersect between the circles

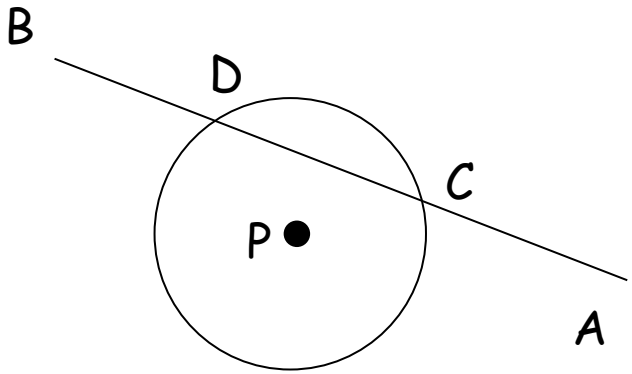


Vocabulary

Secant - A line that intersects the circle at exactly two points.

A secant passes through the circle.

A secant includes a chord.



$\overline{AB}$ is a secant.

$\overline{CD}$ is a chord.

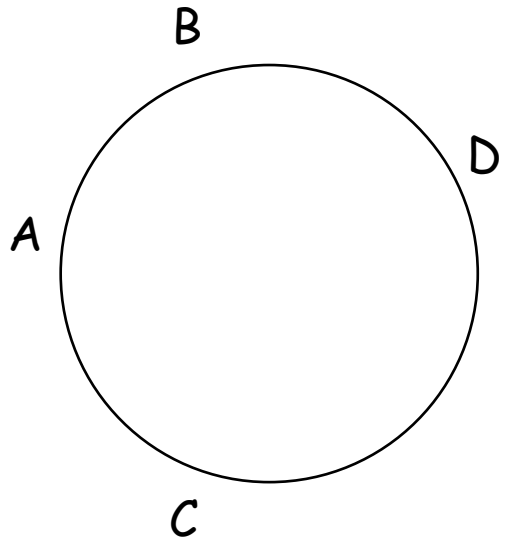
Vocabulary

Arc - An arc is a portion of the circle defined by its endpoints.

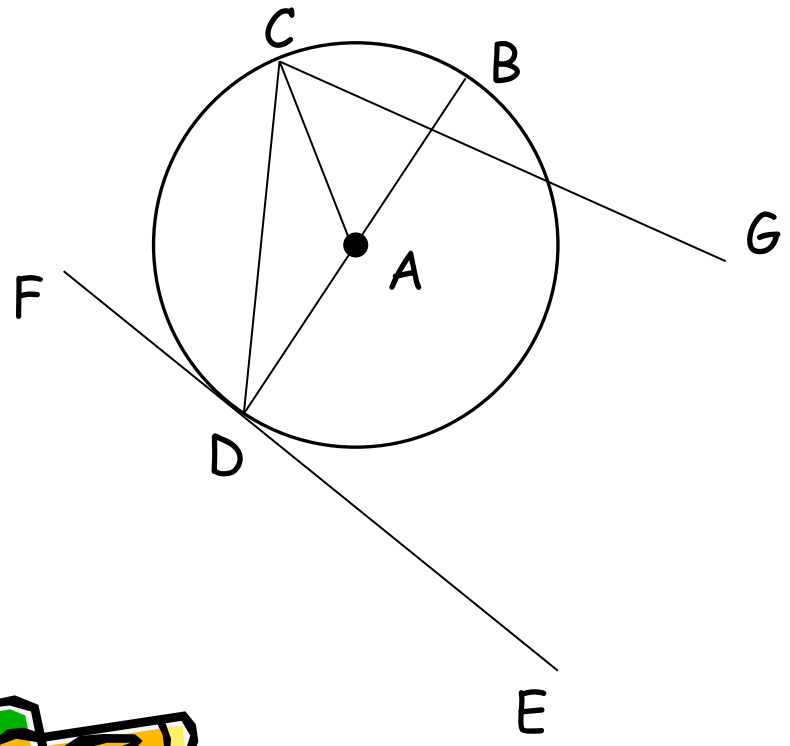
An arc is named by its endpoints. The icon above the endpoints is a small arc. The m in front refers to the degree measurement of the arc.

For example: $\overset{\frown}{AB}$ and m $\overset{\frown}{AB}$

More to come about arcs!



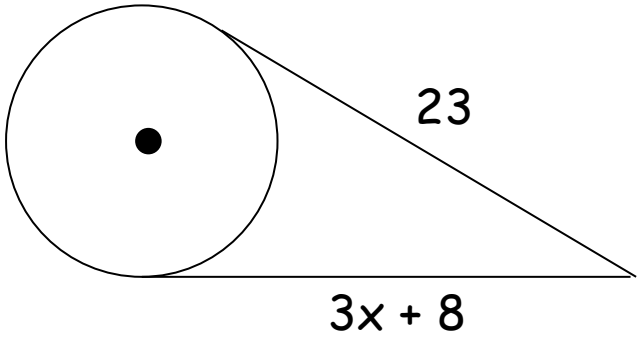
Vocabulary

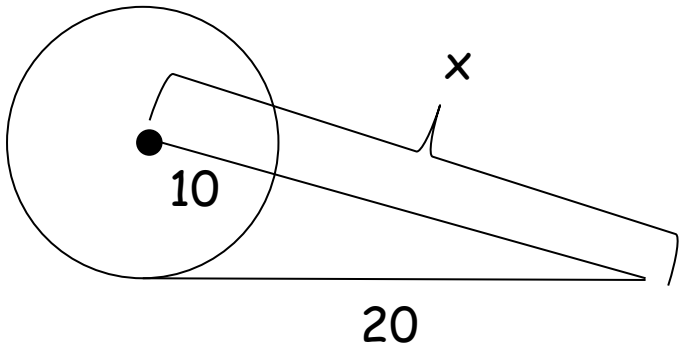


Name:

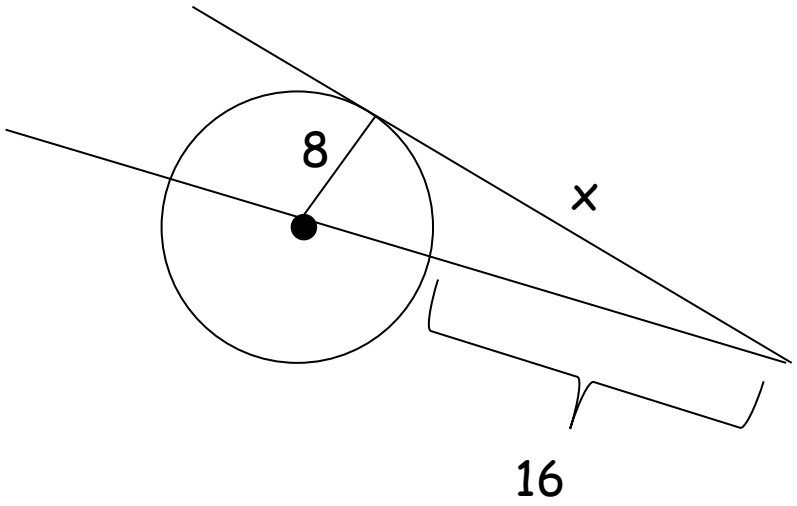
1. All radii
2. All chords
3. All diameters
4. The circle
5. A secant
6. A tangent
7. A right angle
8. An arc less than half way around the circle

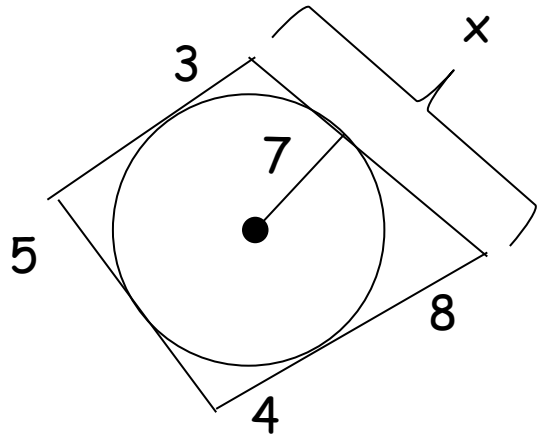
Practice



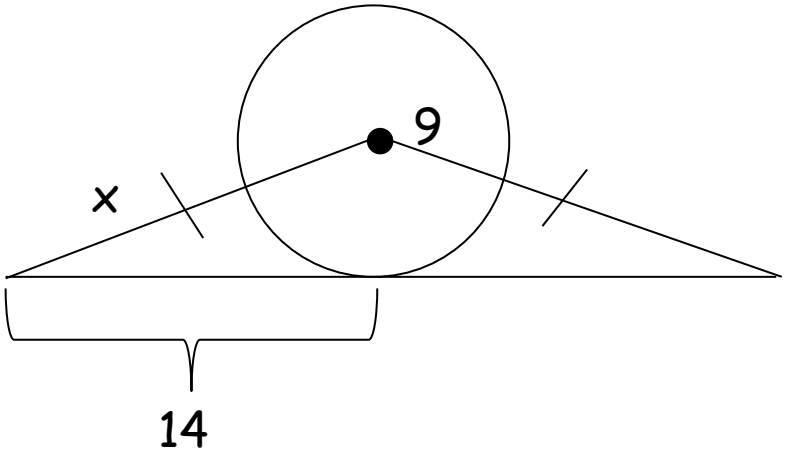


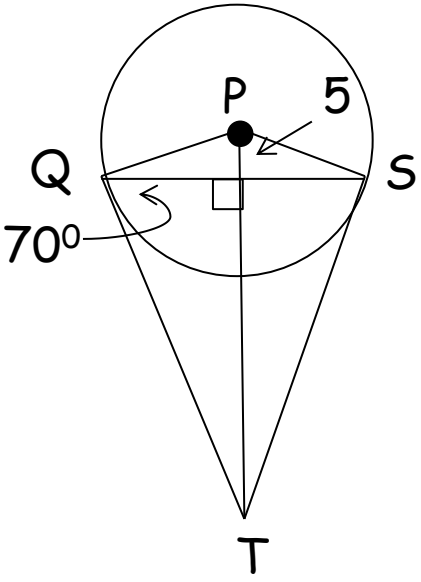
Practice





Practice





Find:
m∠PST
PQ
QS
QT