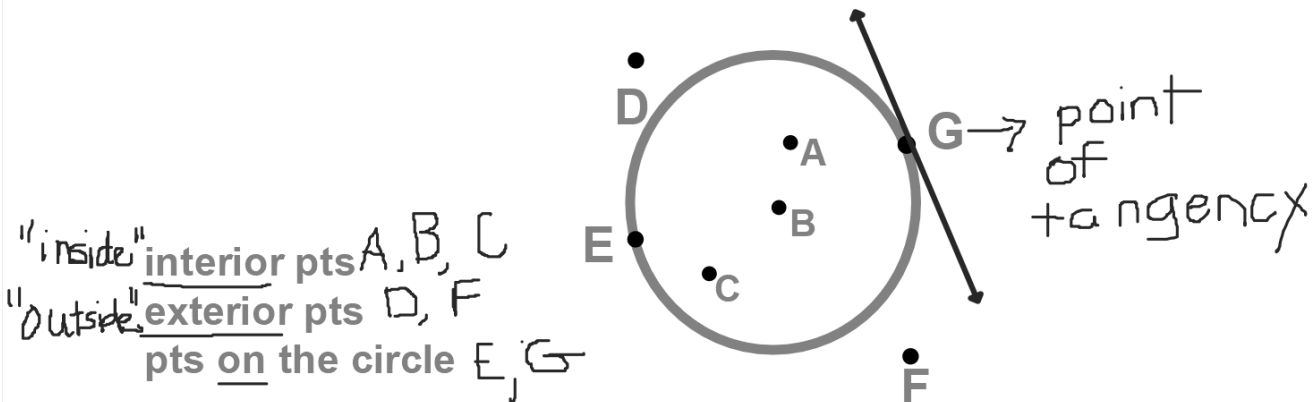


Unit 9 Lesson 5 (Section 10-5) Tangents

OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

Tangent: a line that intersects a circle in exactly one point (point of tangency)

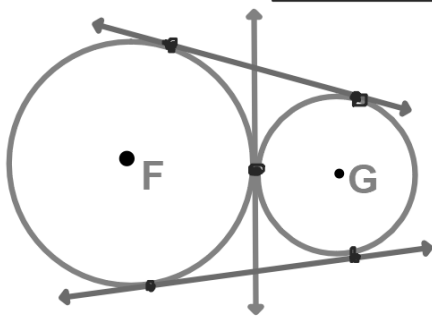


Unit 9 Lesson 5 (Section 10-5) Tangents

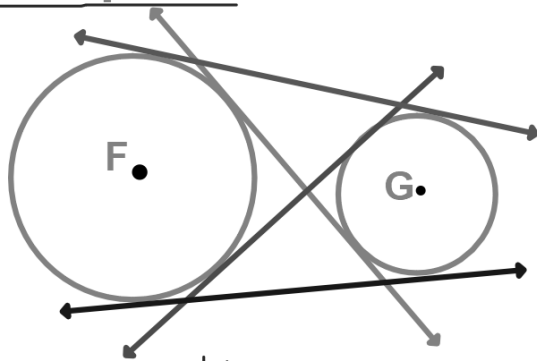
OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

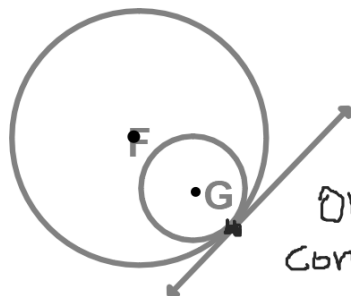
Common Tangent - is a line, ray, or segment that is tangent to 2 circles in the same plane.



3 common tangents



4 common tangents



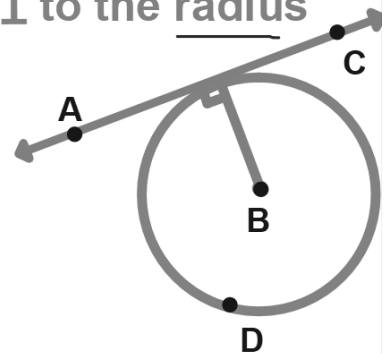
One common tangent

Unit 9 Lesson 5 (Section 10-5) Tangents

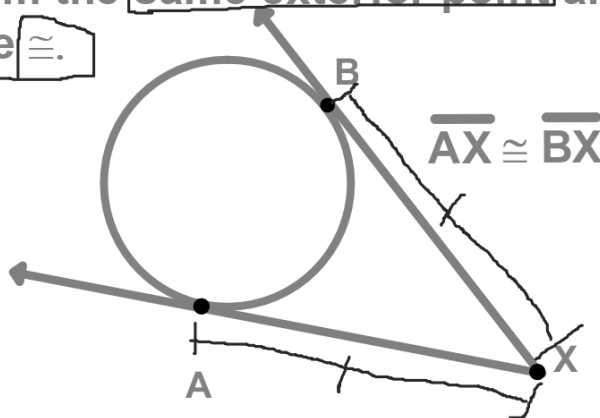
OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

- A line is tangent to a circle, if and only if it is \perp to the radius drawn to the point of tangency.



- If two segments from the same exterior point are tangent to a circle, then they are \cong .



Unit 9 Lesson 5 (Section 10-5) Tangents

OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

1. \overline{RS} is tangent to $\odot Q$ at point R.

Find PR.

$$16^2 + QR^2 = 20^2$$

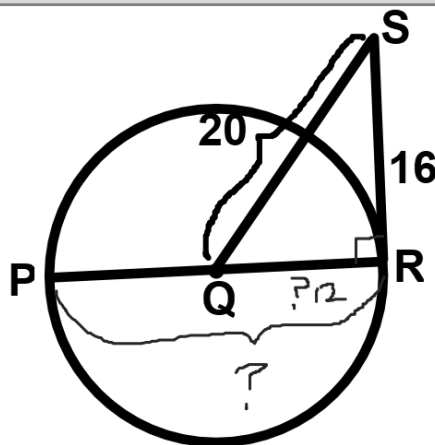
$$256 + QR^2 = 400$$

$$\begin{array}{r} -256 \\ \hline QR^2 = 144 \end{array}$$

$$QR = \sqrt{144} = 12$$

$$D = r \cdot 2$$

$$PR = 12 \cdot 2 = 24$$



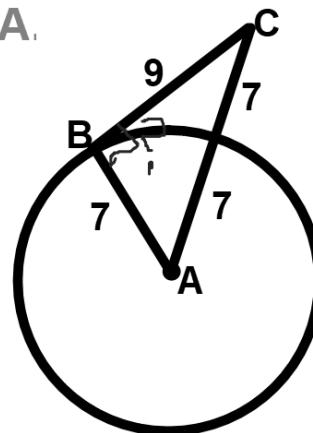
2. Determine whether \overline{BC} is tangent to $\odot A$.

Does $9^2 + 7^2 = 14^2$?

$$\begin{array}{r} 81 + 49 \quad 196 \\ \hline 130 \neq 196 \end{array}$$

No rt \triangle , Not rt \angle
 so \overline{BC} not \perp to $\odot A$

No \overline{BC} not a tangent



Unit 9 Lesson 5 (Section 10-5) Tangents

OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

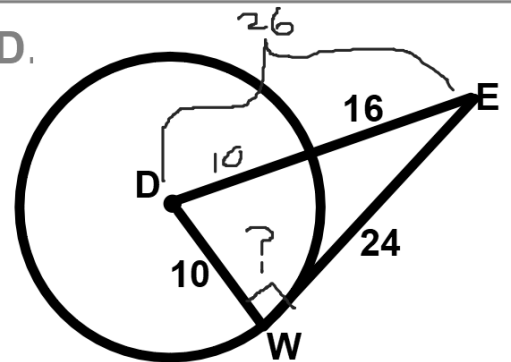
3. Determine whether \overline{EW} is tangent to $\odot D$.

$$10^2 + 24^2 \stackrel{?}{=} 26^2$$

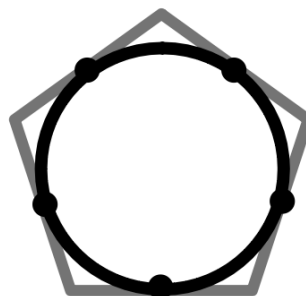
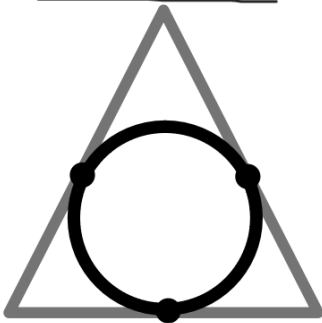
$$100 + 576$$

$$676 = 676$$

YES, \overline{EW} is a tangent



Polygons can be circumscribed about a circle (circle inscribed in a polygon). This happens when every side of the polygon is tangent to the circle.



Unit 9 Lesson 5 (Section 10-5) Tangents

OBJECTIVES Use properties of tangents.

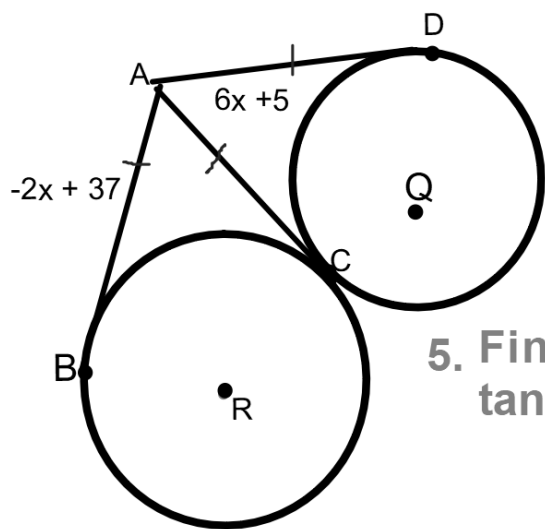
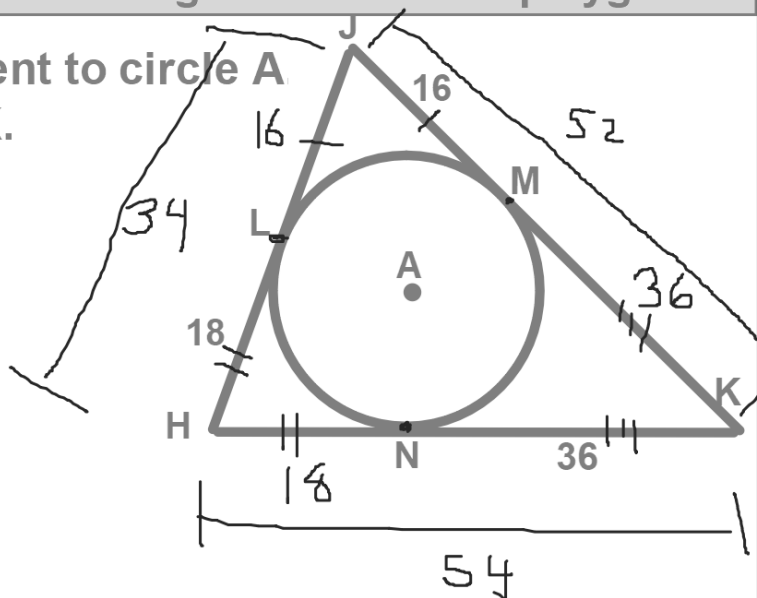
Solve problems involving circumscribed polygons.

4. \overline{JK} , \overline{JH} and \overline{HK} are all tangent to circle A

Find the perimeter of $\triangle HJK$.

$$P = JK + JH + HK$$

$$52 + 34 + 54 = \boxed{140}$$



5. Find x . Assume that segments that appear tangent to circles are tangent.

$$-2x + 37 = 6x + 5$$

$$37 = 8x + 5$$

$$32 = 8x$$

$$\boxed{4 = x}$$

Unit 9 Lesson 5 (Section 10-5) Tangents

OBJECTIVES Use properties of tangents.

Solve problems involving circumscribed polygons.

6.) Find x . Assume that segments that appear tangent to circles are tangent.

$$10 = y$$

$$DG = 15$$

$$x + 14 = 15$$

$$\boxed{x = 1}$$

