

Lesson 10-5

Tangents

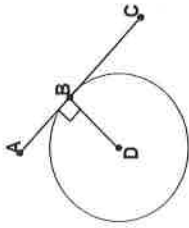
1

Tangents

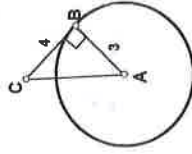
THEOREM #1:

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

$$\overline{AC} \perp \overline{DB}$$



Example: Find the value of \overline{AC}



$$3^2 + 4^2 = AC^2$$

$$9 + 16 = AC^2$$

$$25 = AC^2$$

$$AC = 5$$

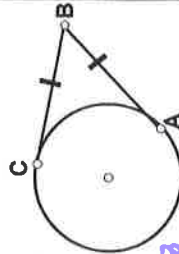
2

Tangents

THEOREM #2:

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

$$\overline{BC} \cong \overline{AB} \quad (BC = AB)$$



Example: Find the value of \overline{CE} and \overline{AE}

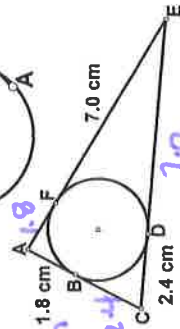
$$AC = AF + FE$$

$$AC = 1.8 + 7.0 = 8.8 \text{ cm}$$

$$\text{If } FE = 7.0, \text{ then } DE = 7.0 + 2.4$$

$$CE = CD + DE$$

$$CE = 2.4 + 7.0 = 9.4$$



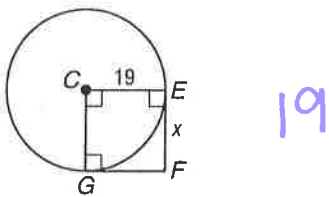
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Tangents

Exercises

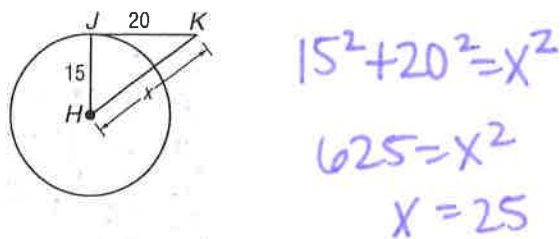
Find x . Assume that segments that appear to be tangent are tangent.

1.



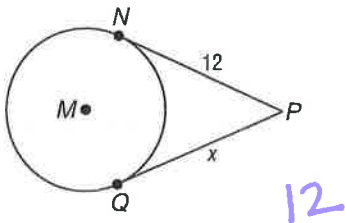
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2.



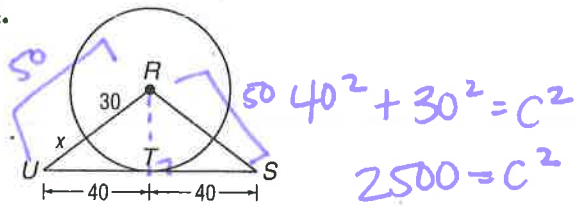
$15^2 + 20^2 = x^2$
 $625 = x^2$
 $x = 25$

3.



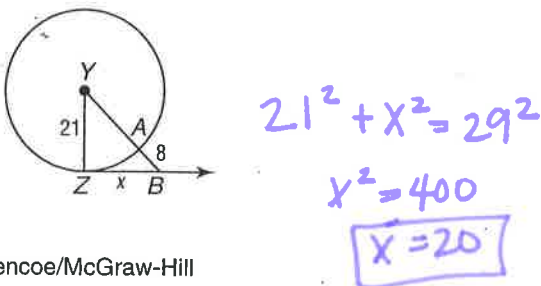
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4.



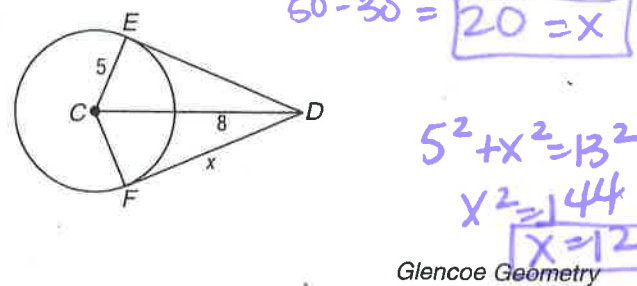
$50^2 + 30^2 = C^2$
 $2500 = C^2$
 $50 = C$
 $50 - 30 = 20 = x$

5.



$21^2 + x^2 = 29^2$
 $x^2 = 400$
 $x = 20$

6.

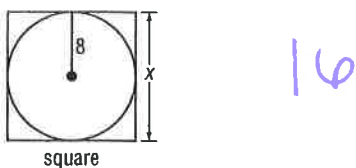


$5^2 + x^2 = 13^2$
 $x^2 = 144$
 $x = 12$

Exercises

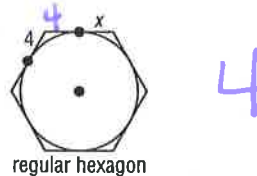
Find x . Assume that segments that appear to be tangent are tangent.

1.



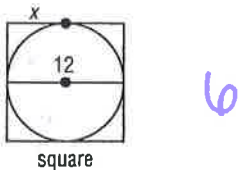
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2.



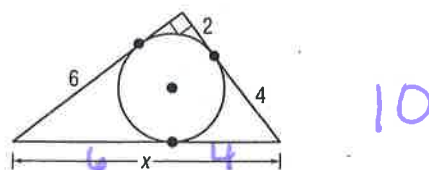
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3.



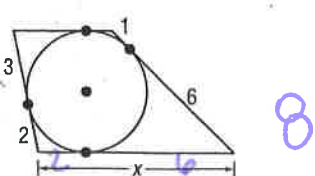
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4.



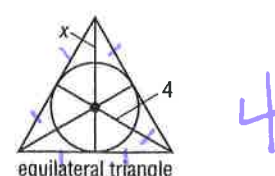
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5.



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6.



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