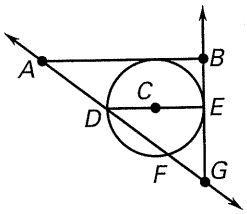
LESSON 6.1

Exercise Set A

MM2G3a Understand and use properties of chords, tangents, and secants as an application of triangle similarity.

MM2G3d Justify measurements and relationships in circles using geometric and algebraic properties.

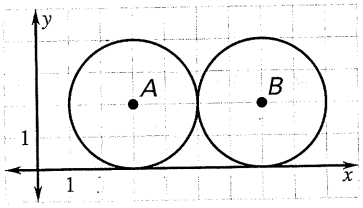
1. Tell whether the line, ray, or segment is best described as a *radius*, *chord*, *diameter*, *secant*, or *tangent* of $\odot C$.



a. $\overline{DF}$ **b.** $\overline{AB}$
c. $\overline{CE}$ **d.** $\overline{DE}$
e. $\overleftrightarrow{AG}$ **f.** $\overrightarrow{EB}$

2. Draw a circle P. Draw a tangent ray on the circle and label it $\overrightarrow{CD}$.
3. Draw a circle P. Draw a secant on the circle and label it $\overleftrightarrow{EF}$.
4. Draw a circle P. Draw a chord on the circle and label it $\overline{GH}$.

Use the diagram to determine if the statement is *true* or *false*.



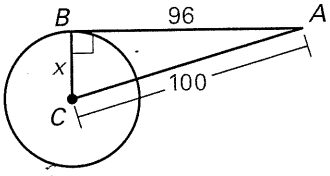
5. The distance between the centers of the circles is equal to the length of the diameter of each circle.
6. The lines $y = 0$ and $y = 4$ represent all the common tangents of the two circles.
7. The circles intersect at the point (6, 3).
8. Suppose the two circles shown are inscribed in a rectangle. The perimeter of the rectangle is 36 units.

Draw two circles that have the given number of common tangents.

9. 3 **10.** 2 **11.** 0

In Exercises 12–17, $\overline{BC}$ is a radius of $\odot C$ and $\overline{AB}$ is tangent to $\odot C$. Find the value of x.

12.



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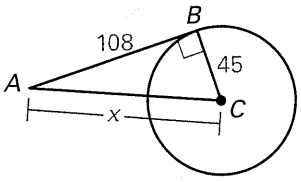

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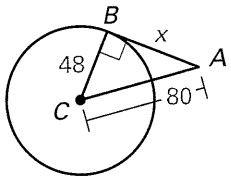

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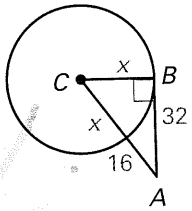

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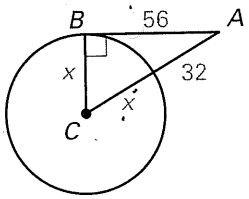
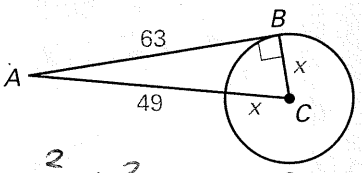


17.



$x^2 + 63^2 = (x+49)^2$

X

UNIT 6

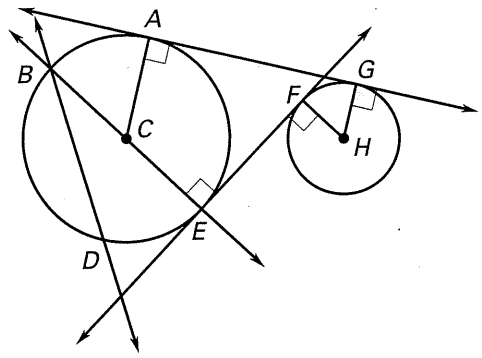
LESSON 6.1

Exercise Set B

MM2G3a Understand and use properties of chords, tangents, and secants as an application of triangle similarity.

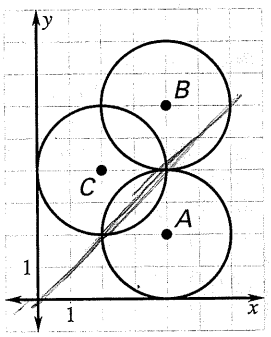
MM2G3d Justify measurements and relationships in circles using geometric and algebraic properties.

State the best term for the given figure in the diagram.



1. F
2. $\overleftrightarrow{FE}$
3. $\overline{HG}$
4. $\overline{DB}$
5. C
6. $\overline{BE}$
7. $\overleftrightarrow{DB}$
8. $\overleftrightarrow{AG}$

Use the diagram at the right.



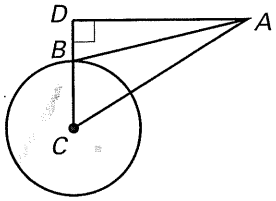
9. Find the diameter and radius of $\odot A$, $\odot B$, and $\odot C$.
10. *Describe* the point of intersection of all three circles.
11. *Describe* all the common tangents of $\odot A$ and $\odot B$.
12. *Describe* the common secant of $\odot A$ and $\odot C$ that passes through both intersections of the two circles.

Draw a pair of circles with the characteristics described.

13. non-intersecting circles, no common tangents
14. intersecting circles, 2 common tangents
15. 1 point of intersection, 1 common tangent
16. 1 point of intersection, 3 common tangents

In the diagram, $\overline{BC}$ is a radius of $\odot C$. Determine whether $\overline{AB}$ is tangent to $\odot C$. *Explain* your reasoning.

17.



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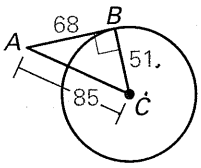

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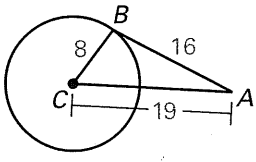


UNIT 6

p. 186 #12-17 all

12) $x^2+96^2=100^2$ $\quad x^2=784$ $\quad \boxed{x=28}$

13) $45^2+108^2=x^2$ $\quad \boxed{x=117}$

14) $x^2+48^2=80^2$ $\quad \boxed{x=64}$

15) $x^2+32^2=(x+16)^2=(x+16)(x+16)$

$x^2+32^2=x(x+16)+16(x+16)$

$\cancel{x^2}+32^2=\cancel{x^2}+16x+16x+256$

$768=32x$ $\quad \boxed{x=24}$

16) $x^2+56^2=(x+32)^2$

$\cancel{x^2}+56^2=\cancel{x^2}+32x+32x+32^2$

$2112=64x$ $\quad \boxed{x=33}$

17) $x^2+63^2=(x+49)^2$ $\quad (x+49)(x+49)$

$\cancel{x^2}+63^2=\cancel{x^2}+98x+49^2$ $\quad x^2+49x+49x+49^2$

$-49^2 \qquad -49^2$

$1568=98x$ $\quad \boxed{x=16}$

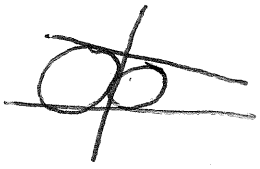
p. 188 #12-17 all

12)

13)  none

14) 

15) 

16) 

17) No, no $\perp$ b/t $\overleftrightarrow{AB}$ and $\overline{BC}$