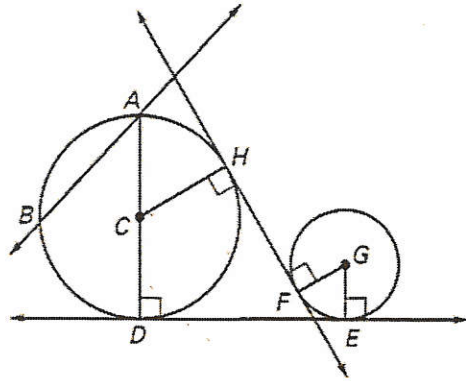


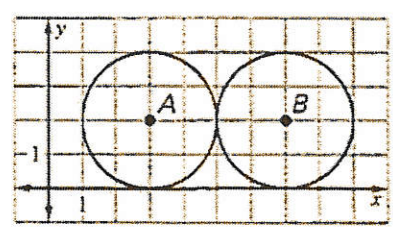
Match the notation with the term that best describes it.

- | | | |
|---|--------------------|----------------------------|
| E | 1. D | A. Center |
| G | 2. \overline{FH} | B. Chord |
| D | 3. \overline{CD} | C. Diameter |
| B | 4. \overline{AB} | D. Radius |
| A | 5. C | E. Point of tangency |
| C | 6. \overline{AD} | F. Common external tangent |
| H | 7. \overline{AB} | G. Common internal tangent |
| F | 8. \overline{DE} | H. Secant |



Use the diagram at the right.

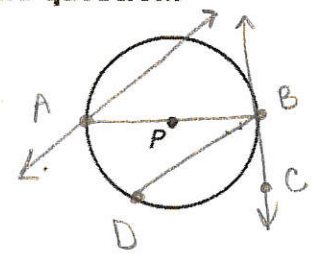
- What are the diameter and radius of $\odot A$? $d:4$ $r:2$
- What are the diameter and radius of $\odot B$? $d:4$ $r:2$
- Describe the intersection of the two circles. $(5, 2)$
- Describe all the common tangents of the two circles.



1 internal tangent, 2 external tangents

Use $\odot P$ to draw the part of the circle described or answer the question.

- Draw a diameter \overline{AB} .
- Draw tangent line \overleftrightarrow{CB} .
- Draw chord \overline{DB} .
- Draw a secant through point A.
- What is the name of a radius in the figure?



\overline{PB} or \overline{PA}

Tell how many common tangents the circles have and draw them.

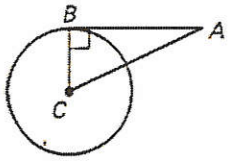
18.
 2

19.
 0

20.
 4

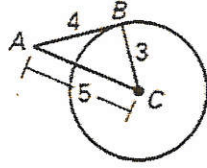
In the diagram, \overline{BC} is a radius of $\odot C$. Determine whether \overline{AB} is tangent to $\odot C$. Explain your reasoning.

21.



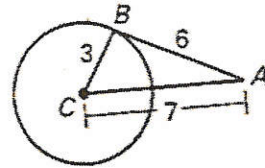
yes
right triangle

22.



$3^2 + 4^2 = 5^2$
right triangle
yes

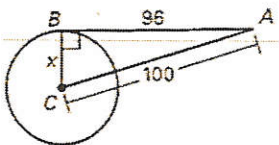
23.



$3^2 + 6^2 \neq 7^2$
Not right triangle
No

In Exercises 21-26, \overline{BC} is a radius of $\odot C$ and \overline{AB} is tangent to $\odot C$. Find the value of x .

24.



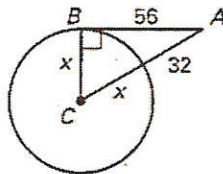
$$x^2 + 96^2 = 100^2$$

$$x^2 = 784$$

$$x = \sqrt{784}$$

$$x = 28$$

25.



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

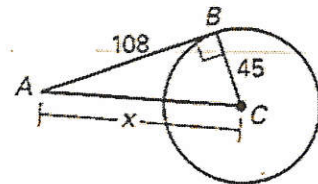
$$x^2 + 3136 = x^2 + 64x + 1024$$

$$3136 = 64x + 1024$$

$$2112 = 64x$$

$$x = 33$$

26.

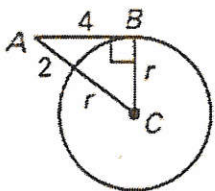


$$45^2 + 108^2 = x^2$$

$$x^2 = 13689$$

$$x = 117$$

27.



$$r^2 + 4^2 = (2 + r)^2$$

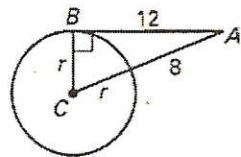
$$r^2 + 16 = 4 + 4r + r^2$$

$$16 = 4 + 4r$$

$$12 = 4r$$

$$r = 3$$

28.



$$r^2 + 12^2 = (r + 8)^2$$

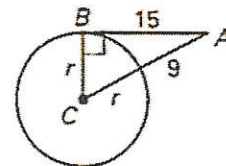
$$r^2 + 144 = r^2 + 16r + 64$$

$$144 = 16r + 64$$

$$80 = 16r$$

$$r = 5$$

29.



$$r^2 + 15^2 = (r + 9)^2$$

$$r^2 + 225 = r^2 + 18r + 81$$

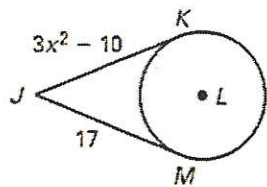
$$225 = 18r + 81$$

$$144 = 18r$$

$$r = 8$$

The points K and M are points of tangency. Find the value(s) of x.

30.



$$3x^2 - 10 = 17$$

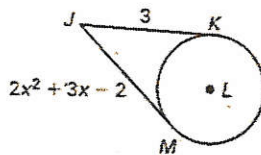
$$3x^2 = 27$$

$$x^2 = 9$$

$$x = \pm\sqrt{9}$$

$$x = \pm 3$$

31.



$$2x^2 + 3x - 2 = 3$$

$$2x^2 + 3x - 5 = 0$$

$$(2x + 5)(x - 1) = 0$$

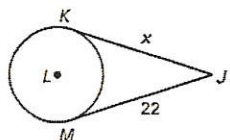
$$x = -\frac{5}{2} \quad x = 1$$

$$2\left(-\frac{5}{2}\right)^2 + 3\left(-\frac{5}{2}\right) - 2 = 3$$

$$2(1)^2 + 3(1) - 2 = 3$$

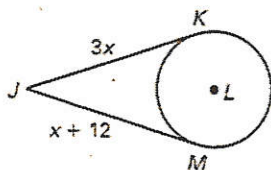
In the diagram, assume that the segments are tangents if they appear to be. Find the value(s) of x.

32.



$$x = 22$$

33.

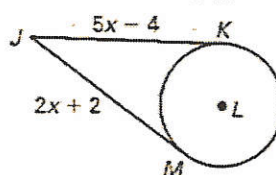


$$3x = x + 12$$

$$2x = 12$$

$$x = 6$$

34.

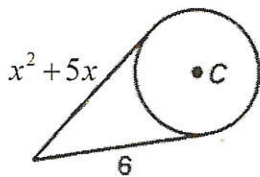


$$5x - 4 = 2x + 2$$

$$3x = 6$$

$$x = 2$$

35.



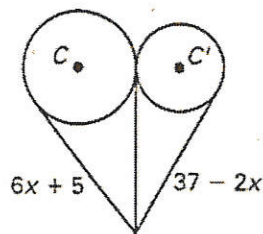
$$x^2 + 5x = 6$$

$$x^2 + 5x - 6 = 0$$

$$(x + 6)(x - 1) = 0$$

$$x = -6 \quad x = 1$$

36.

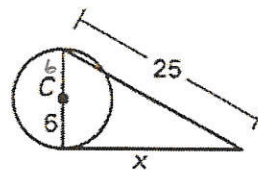


$$6x + 5 = 37 - 2x$$

$$8x = 32$$

$$x = 4$$

37.



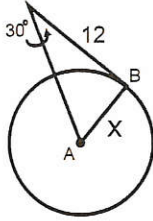
$$12^2 + x^2 = 25^2$$

$$144 + x^2 = 625$$

$$x^2 = \sqrt{481}$$

$$x = 21.93$$

38.

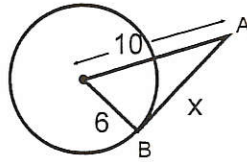


$$X = \frac{12}{\sqrt{3}} \text{ or}$$

$$X = 4\sqrt{3}$$

$$X = 6.9$$

39.



$$6^2 + X^2 = 10^2$$

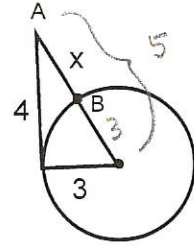
$$36 + X^2 = 100$$

$$X^2 = 64$$

$$X = \sqrt{64}$$

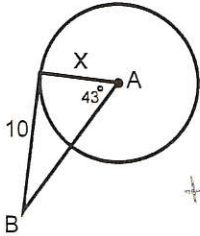
$$X = 8$$

40.



$$X = 2$$

41.

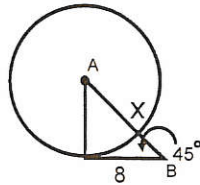


$$\tan 43^\circ = \frac{10}{X}$$

$$X = \frac{10}{\tan 43^\circ}$$

$$X = 10.7$$

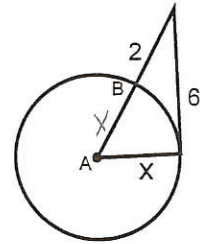
42.



$$X = 8\sqrt{2} \text{ or}$$

$$X = 11.3$$

43.



$$X^2 + 6^2 = (X+2)^2$$

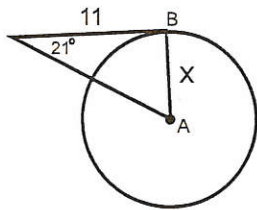
$$X^2 + 36 = X^2 + 4X + 4$$

$$36 = 4X + 4$$

$$32 = 4X$$

$$X = 8$$

44.

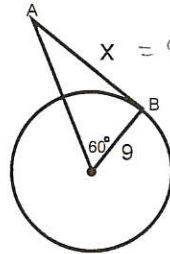


$$\tan 21^\circ = \frac{X}{11}$$

$$11 \tan 21^\circ = X$$

$$X = 4.2$$

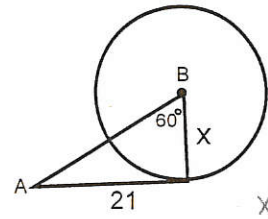
45.



$$X = 9\sqrt{3}$$

$$X = 15.6$$

46.



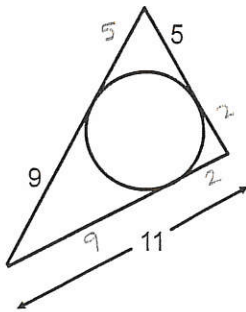
$$X = \frac{21}{\sqrt{3}} \text{ or}$$

$$X = \frac{21\sqrt{3}}{3}$$

$$X = 12.1$$

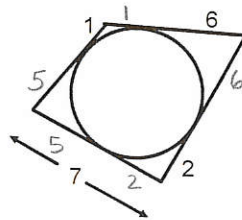
Find the perimeter of the polygon.

47.



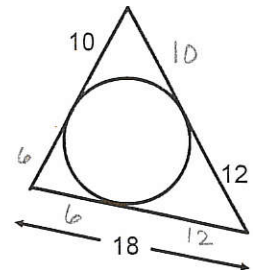
32

48.



28

49.



56