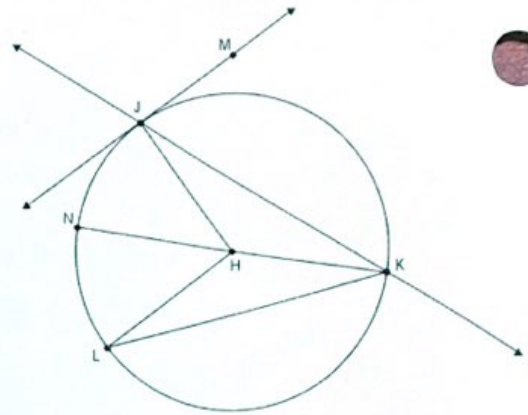


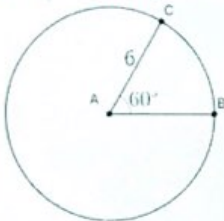
Matching: Select the vocabulary term that describes each object listed from the list on the right. Each vocabulary term must be used exactly once.

- | | | | |
|----------|--------------------|----------|------------------------------|
| <u>C</u> | 1. \overline{LK} | <u>A</u> | Radius |
| <u>A</u> | 2. \overline{NH} | <u>B</u> | Point of tangency |
| <u>D</u> | 3. \overline{KN} | <u>C</u> | Chord that is not a diameter |
| <u>F</u> | 4. $\angle JKL$ | <u>D</u> | Diameter |
| <u>H</u> | 5. \overline{MJ} | <u>E</u> | Center of circle |
| <u>G</u> | 6. $\angle LHN$ | <u>F</u> | Inscribed Angle |
| <u>E</u> | 7. H | <u>G</u> | Central Angle |
| <u>B</u> | 8. J | <u>H</u> | Tangent Line |



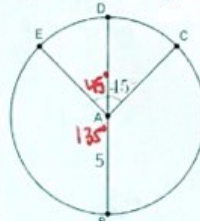
For all problems: Round to the nearest tenth where applicable.

9) Use the figure to answer the questions below:



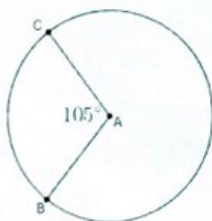
- Classify \widehat{BC} : minor semicircle major
- What is the measure of \widehat{BC} ?
 60°
- What is the circumference of the circle?
 $2\pi \cdot 6 = 12\pi$
- What is the length of \widehat{BC} ?
 $12\pi \cdot \frac{60}{360} = 2\pi \text{ units} \approx 6.28$
- What is the area of $\odot A$?
 $\pi(6)^2 = 36\pi \text{ units}^2 \approx 113.1$
- What is the area of sector \widehat{BC} ?
 $36\pi \cdot \frac{60}{360} = 6\pi \approx 18.85 \text{ units}^2$

10) Use the figure to answer the questions below:



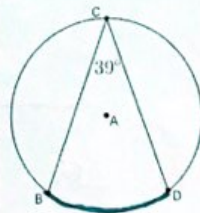
- Classify \widehat{DBE} : minor semicircle major
- What is measure of \widehat{BC} ?
 $\widehat{BC} = 180 - 45 = 135^\circ$
- What is the circumference of the circle?
 $2\pi \cdot 5 = 10\pi \approx 31.42$
- What is the length of \widehat{EC} ?
 $2\pi \cdot 5 \cdot \frac{90}{360} = 2.5\pi \approx 7.85 \text{ units}$
- What is the area of $\odot A$?
 $\pi(5)^2 = 25\pi$
- What is the area of sector \widehat{BE} ?
 $25\pi \cdot \frac{135}{360} = 9.375\pi \text{ units}^2 \approx 29.45 \text{ units}^2$

11)



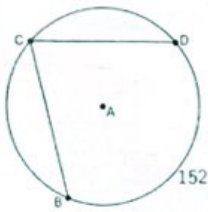
- What type of angle is $\angle CAB$?
central
- $m\widehat{CB} = 105^\circ$

12)



- What type of angle is $\angle BCD$?
inscribed
- $m\widehat{BD} = 78^\circ$

13)



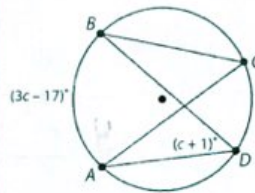
a. What type of angle is $\angle BCD$?

inscribed

b. $m\angle BCD =$

76°

14)



a. What is the value c ?

$$2(c+1) = 3c - 17$$

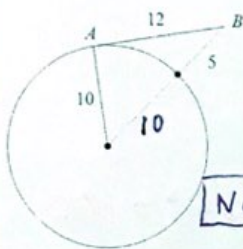
$$2c + 2 = 3c - 17$$

$$c = 19$$

b. Find the $m\angle C$

$$m\angle C = 20$$

15) Determine if \overline{AB} is tangent to the circle.



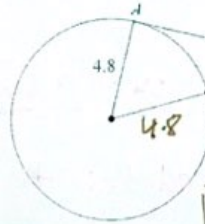
$$10^2 + 12^2 = 15^2$$

$$100 + 144 = 225$$

$$244 \neq 225$$

NOT TANGENT

16) Determine if \overline{AB} is tangent to the circle.



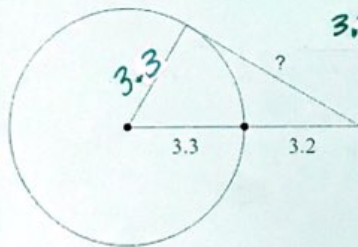
$$4.8^2 + 5.4^2 = 9^2$$

$$23.04 + 29.16 = 81$$

$$52.2 = 81$$

TANGENT

17) Find the segment length indicated. Assume that lines that appear to be tangent are tangent.

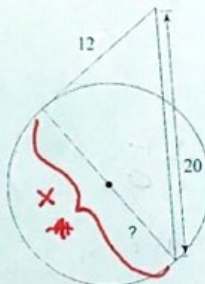


$$3.3^2 + ?^2 = 6.5^2$$

$$? = \sqrt{31.36}$$

$$? = 5.6$$

18) Find the segment length indicated. Assume that lines that appear to be tangent are tangent.



$$12^2 + x^2 = 20^2$$

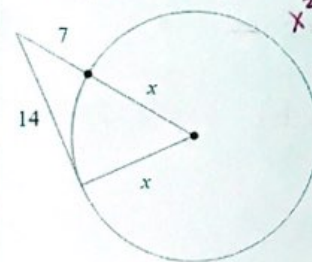
$$144 + x^2 = 400$$

$$x^2 = 256$$

$$x = 16$$

$$? = 8$$

19) Solve for x . Assume that lines that appear to be tangent are tangent.



$$x^2 + 14^2 = (7+x)^2$$

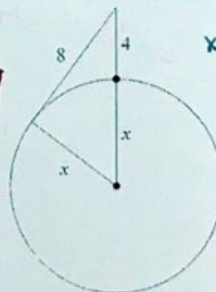
$$x^2 + 196 = x^2 + 14x + 49$$

$$196 = 14x + 49$$

$$147 = 14x$$

$$x = 10.5$$

20) Solve for x . Assume that lines that appear to be tangent are tangent.



$$x^2 + 8^2 = (x+4)^2$$

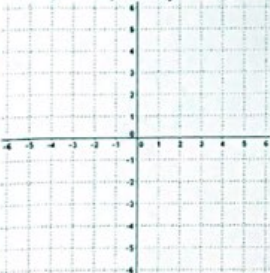
$$x^2 + 64 = x^2 + 8x + 16$$

$$48 = 8x$$

$$x = 6$$

21) Give the radius and the center and then graph:

$$(x-3)^2 + (y+2)^2 = 4$$



radius:

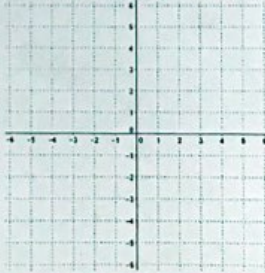
2

center:

(3, -2)

22) Give the radius and the center and then graph:

$$(x+1)^2 + y^2 = 25$$



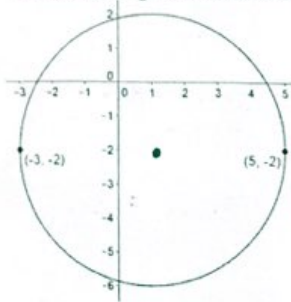
radius:

5

center:

(-1, 0)

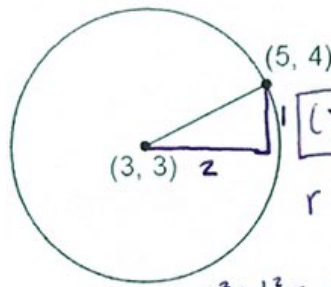
23) Write the equation of the circle.



center: $(1, -2)$
radius: 4

$$(x-1)^2 + (y+2)^2 = 16$$

24) Write the equation of the circle.

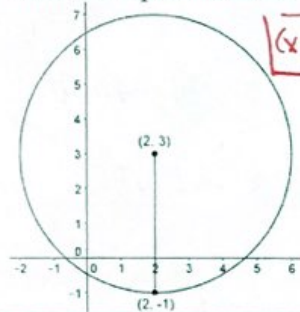


$$(x-3)^2 + (y-3)^2 = 5$$

$$r = \sqrt{5}$$

$$2^2 + 1^2 = c^2 \quad \sqrt{5} = \sqrt{c^2}$$

25) Write the equation of the circle.



$$(x-2)^2 + (y-3)^2 = 16$$

radius: 4

26) Write the equation of the circle with the given information:

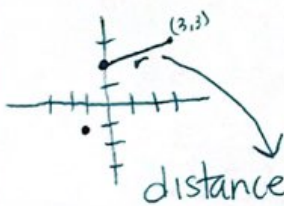
Center: $(253, -967)$

Diameter: 20

radius: 10

$$(x-253)^2 + (y+967)^2 = 100$$

27) Point $A(3,3)$ is on circle Z , with has center $Z(0,2)$. Determine if point $B(-1, -1)$ is also on the circle.



$$(x)^2 + (y-2)^2 = 10 \leftarrow \text{equation for this circle.}$$

$$-1^2 + (-1-2)^2 = 10$$

$$1 + 9 = 10 \checkmark$$

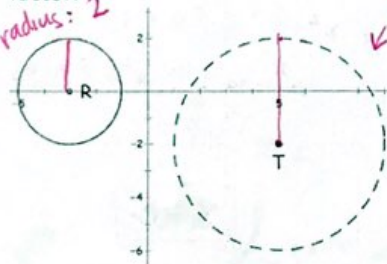
yes, $(-1, -1)$ is on the circle

distance formula: $\sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

$$\sqrt{(3-0)^2 + (2-3)^2} = \sqrt{9+1} \quad r = \sqrt{10}$$

28) Show that the circles are similar by describing the transformations that map $\odot R$ onto $\odot T$. State the scale factor.

radius: 2



radius = 4

Scale factor: 2

move to the right by 7,
down 2.

EXTENDED LEARNING: $\angle BFD$ & $\angle CFE$ are neither central, inscribed, nor circumscribed angles. This type of angle is called an "Interior Angle". Using some creativity and critically thinking, come up with the correct angle measurement for $\angle BFD$.

$$\frac{39 + 85}{2} = 62^\circ$$

