

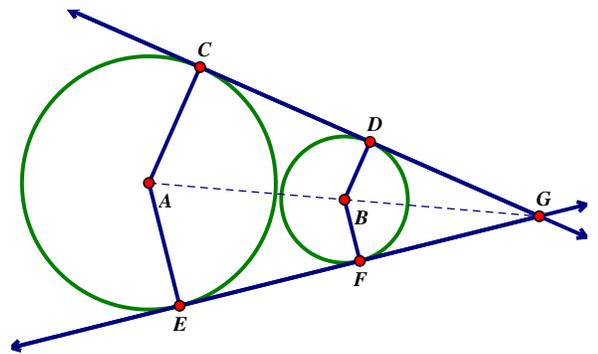
1. \overline{GD} and \overline{GF} are common external tangents with points of tangency at D, C, F and E.

A) Which statement is false?

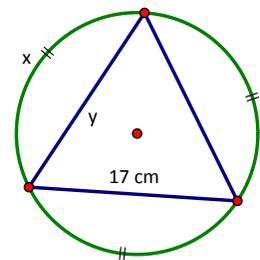
- A. $GE = 2GF$
- B. $\triangle GBD \sim \triangle GAC$
- C. $m\angle GEA = 90^\circ$
- D. $GE = GC$

B) Why is $\triangle GBF \sim \triangle GAE$?

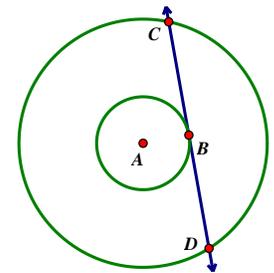
- A. SSS~
- B. AA~
- C. SAS~
- D. RHL \cong



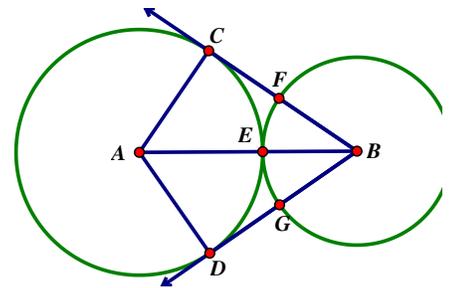
2. Given the circle at right, determine the values of x and y.



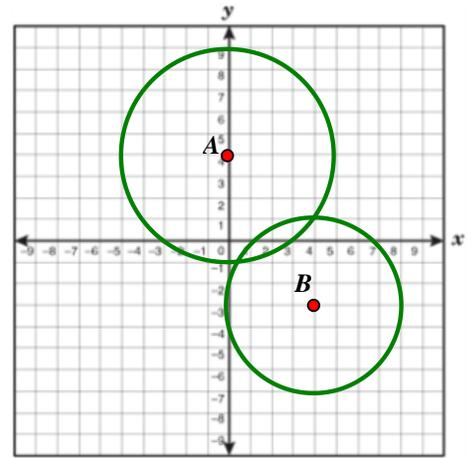
3. In the diagram, point A is the center of both circles and the radii of the circles are 10 cm and 26 cm respectively. \overline{CD} is tangent to the smaller circle. Find CD.



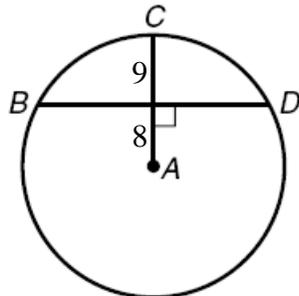
4. In the diagram, Circle A and Circle B have radii of 8 cm and 5 cm respectively. \overline{BC} and \overline{BD} are tangent to Circle A. Determine CF to the nearest hundredth.



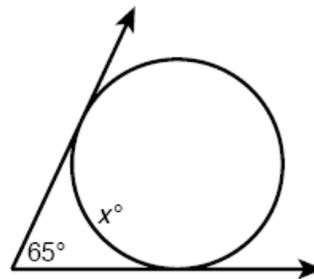
5. Determine the translation vector and scale factor used to map circle A onto circle B.



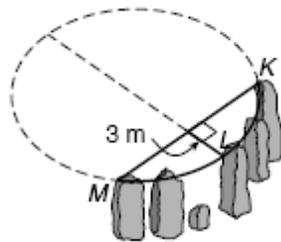
6. What is BD ?



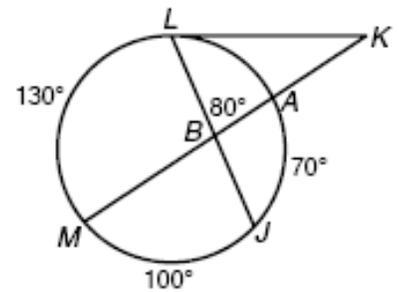
8. What is the value of x ?



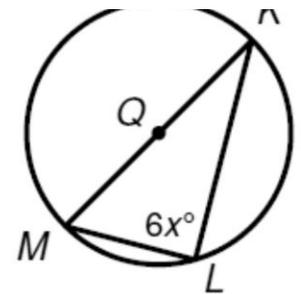
7. An arrangement of stones that form the arc of a circle was discovered. If the measure of the chord is 18 meters, find the diameter of the completed circle.



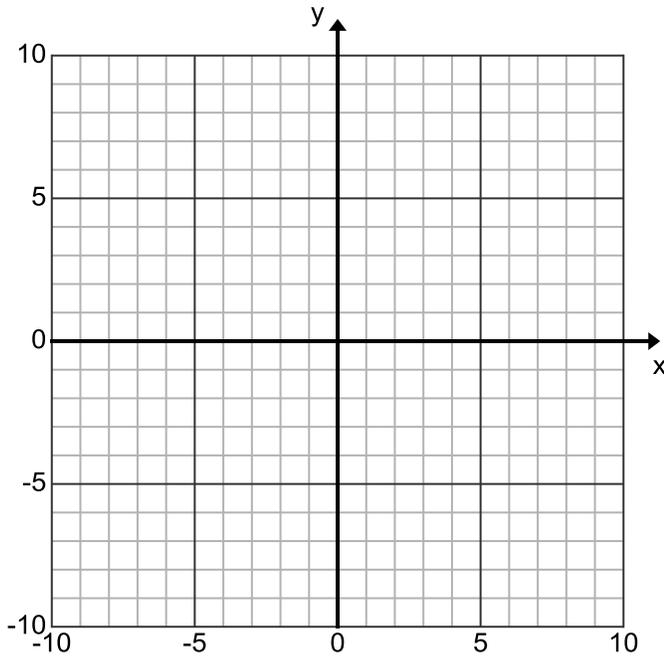
9. Find $m\angle LKA$.



10. Find the value of x .



11. Graph $(x-2)^2 + (y+1)^2 = 25$. Then write the equation of the line tangent to the circle at (5,3).



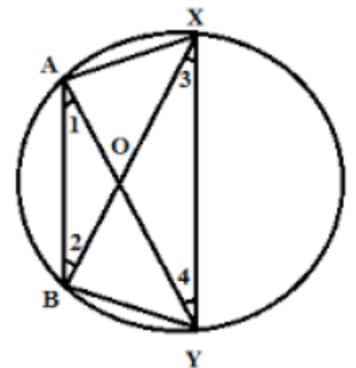
12. Write the equation of the circle whose center is (2,3) and that passes through the point (6,6).

13. Is the point $P(7,-1)$ on the circle whose equation is $(x+3)^2 + (y+4)^2 = 109$?

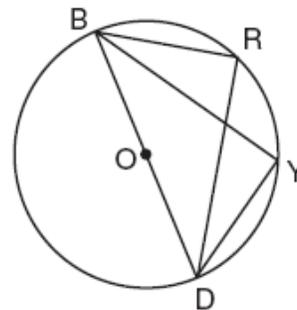
14. Given that $\angle 1 \cong \angle 4$, explain why

A) $\widehat{AX} \cong \widehat{BY}$

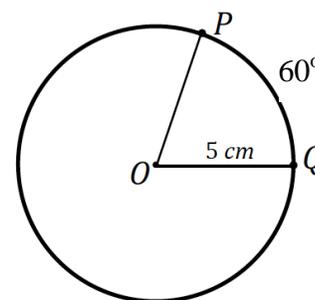
B) $AXYB$ is an isosceles trapezoid.



15. **Given:** $m\overline{BR} = 70$, $m\overline{YD} = 70$,
 and \overline{BOD} is the diameter of circle O
Prove: $\triangle RBD \cong \triangle YDB$



16. What is the measure of the central angle in radians?
 Leave your answer as a reduced fraction in terms of π .



17. Which is the only number that cannot be the number of common tangents between two circles?
 A. 3 B. 4 C. 0 D. 5
18. Draw two circles that have only 1 common tangent line.
19. Complete the square to put the equation into center-radius form: $x^2 + y^2 - 8y - 20 = 0$.
 Then identify the center and the radius.

ANSWER KEY - UNIT 11 CIRCLES REVIEW PACKET (2015-16)

- | | | |
|---|---|---|
| 1. A) A B) B | 6. $BD = 30$ | 11. Graph of circle with center (2, -1) & radius = 5; |
| 2. $X=120^\circ$; $y=17$ cm | 7. diameter = 30 ft
(use $P \cdot P = P \cdot P$) | Tang line: $y = -\frac{3}{4}x + \frac{27}{4}$ |
| 3. $CD=48$ cm | 8. $x = 115^\circ$ | Or $y - 3 = -\frac{3}{4}(x - 5)$ |
| 4. $CF=5.25$ cm | 9. $m\angle LKA = 35^\circ$ ($m\angle LA=60^\circ$) | 12. $(x-2)^2 + (y-3)^2 = 25$ |
| 5. $T < 4, -7 >$; $k = \frac{4}{5}$ (scale factor) | 10. $x = 15^\circ$ | |

13. Yes, since the point (7,-1) satisfies the given equation for the circle ($109=109$)

14. A) Given $\angle 1 \cong \angle 4$ are congruent alternate interior angles, then the chords $\overline{AB} \parallel \overline{XY}$. Therefore the arcs are congruent since parallel chords in a circle intercept congruent arcs $\widehat{AX} \cong \widehat{BY}$.

B) Since the chords are parallel, then $AXYB$ is a trapezoid by definition. Since $\widehat{AX} \cong \widehat{BY}$, then $\overline{AX} \cong \overline{BY}$ because congruent arcs in a circle have congruent chords. Therefore the legs of trapezoid $AXYB$ are congruent making it an isosceles trapezoid.

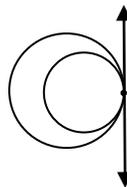
15. Proof:

Statements	Reasons
1. $mBR = 70^\circ, mYD = 70^\circ$ and \overline{BOD} is a diameter of circle O.	1. Given
2. $BR \cong YD$	2. Arcs of = length are \cong (or = measure $\longleftrightarrow \cong$)
3. $\angle RDB$ is an inscribed \angle $\angle YBD$ is an inscribed \angle	3 Defn of inscribed angles: An \angle whose vertex is ON the circle is an inscribed angle.
4 $\angle RDB \cong \angle YBD$	4. Inscribed \angle 's that intercept \cong arcs are \cong .
5. $\angle BRD$ & $\angle DYB$ are Rt. \angle 's	5 Inscribed \angle 's subtended by a diameter are right \angle 's
6. $\angle BRD \cong \angle DYB$	6 All right \angle 's are \cong
7. $\overline{BD} \cong \overline{BD}$	7 Reflexive Property of Congruence
8. $\triangle RBD \cong \triangle YDB$	8 $AAS \cong AAS$

16. $\frac{\pi}{3}$ radians

17. D

18. The two circles must be internally tangent:



19. $(x - 0)^2 + (y - 4)^2 = 36$;
center (0,4); radius = 6