1. Find $YB$ if the diameter of $\odot A$ is 10 inches, the diameter of $\odot B$ is 8 inches, and $AX = 3$ inches.

2. Find the radius and diameter of a flying disc with a circumference of $11\pi$ inches.

3. In $\odot K$, $m\angle HKG = x + 10$ and $m\angle IKJ = 3x - 22$. Find $m\overline{FJ}$.

4. The diameter of $\odot C$ is 18 units long. Find the length of an arc that has a measure of 100. Round to the nearest hundredth.

5. In $\odot A$, $CG = 5x + 2$ and $GD = 7x - 12$. Find $x$.

6. In $\odot O$, $PQ = 18$ meters. Find the distance from $O$ to $PQ$.

7. Find $x$.

8. A regular decagon is inscribed in a circle. Find the measure of each minor arc.

9. $\overline{CD}$ is tangent to $\odot Z$ at $(1, 7)$. If $Z$ has coordinates $(5, 2)$, find the slope of $\overline{CD}$.

10. Triangle $DEF$ is circumscribed about $\odot O$ with $DE = 15$ units, $DF = 12$ units, and $EF = 13$ units. Find the length of each segment whose endpoints are $D$ and the points of tangency on $DE$ and $DF$.

11. Find $x$.
12. Find $x$ if $\overrightarrow{BA}$ is tangent to $\odot P$ at $A$. 

For Questions 13–16, use $\odot G$ with $\overrightarrow{FA}$ and $\overrightarrow{FE}$ tangent at $A$ and $E$.

13. Find $m \angle ACE$.

14. Find $m \angle ADB$.

15. Find $m \angle AFE$.

16. Find $m \angle EHD$.

17. Determine the length of the radius of a circle with an equation of $(x - 3)^2 + (y - 2)^2 = r^2$ and containing $(1, 4)$.

18. Write the equation of a circle with a diameter having endpoints at $(-2, 6)$ and $(8, 4)$.

19. Write the equation of a circle with a radius of length 10 and a center at $(−4, −9)$.

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

Bonus \( \overrightarrow{AB} \) is tangent to $\odot P$ at $(5, 1)$. The equation for $\odot P$ is $x^2 + y^2 − 2x + 4y = 20$. Write the equation of $\overrightarrow{AB}$ in slope-intercept form.

B: 

\[ y = -\frac{4}{3}x + \frac{23}{3} \]