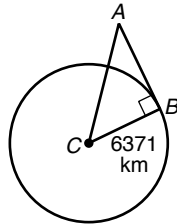
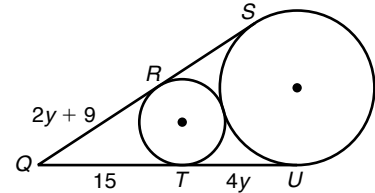


LESSON **11-1** **Problem Solving**
Lines That Intersect Circles

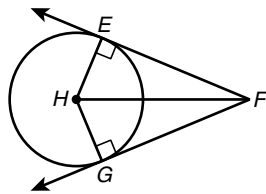
1. The cruising altitude of a commercial airplane is about 9000 meters. Use the diagram to find AB , the distance from an airplane at cruising altitude to Earth's horizon. Round to the nearest kilometer.



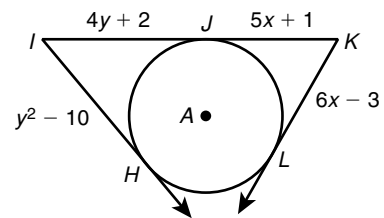
2. In the figure, segments that appear to be tangent are tangent. Find QS .



3. The area of $\odot H$ is 100π , and $HF = 26$ centimeters. What is the perimeter of quadrilateral $EFGH$?



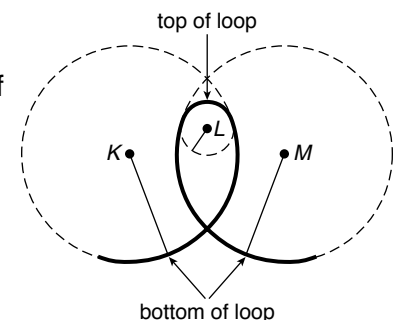
4. \overrightarrow{IH} , \overrightarrow{IK} , and \overrightarrow{KL} are tangent to $\odot A$. What is IK ?



Choose the best answer.

5. A teardrop-shaped roller coaster loop is a section of a spiral in which the radius is constantly changing. The radius at the bottom of the loop is much larger than the radius at the top of the loop, as shown in the figure. Which is a true statement?

- A** $\odot K$ and $\odot M$ have two points of tangency.
B $\odot K$, $\odot L$, and $\odot M$ have one point of tangency.
C $\odot L$ is internally tangent to $\odot K$ and $\odot M$.
D $\odot L$ is externally tangent to $\odot K$ and $\odot M$.



6. $\odot G$ has center $(2, 5)$ and radius 3.
 $\odot H$ has center $(2, 0)$. If the circles are tangent, which line could be tangent to both circles?

- F** $x = 2$ **H** $y = 2$
G $x = 0$ **J** $y = 5$

7. The Hubble Space Telescope orbits 353 miles above Earth, and Earth's radius is about 3960 miles. Which is closest to the distance from the telescope to Earth's horizon?

- A** 1634 mi **C** 3976 mi
B 1709 mi **D** 5855 mi