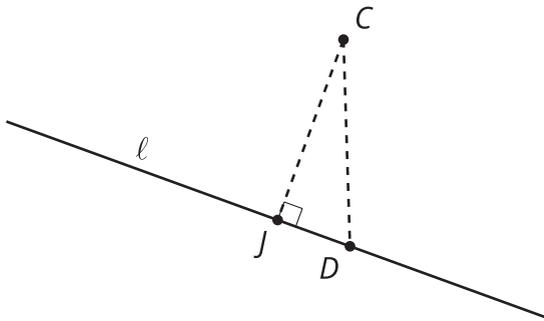


Unit 7 Lesson 3: Tangent Lines

1 Swim to Shore (Warm up)

Student Task Statement

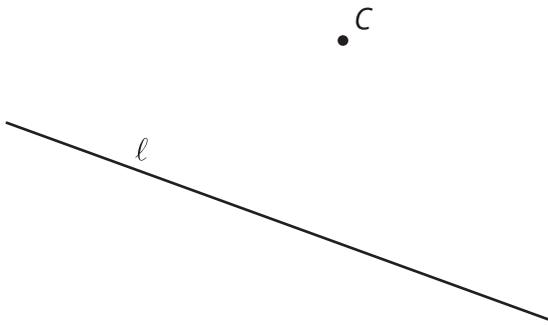
Line ℓ represents a straight part of the shoreline at a beach. Suppose you are in the ocean at point C and you want to get to the shore as fast as possible. Assume there is no current. Segments CJ and CD represent 2 possible paths.



Diego says, "No matter where we put point D , the Pythagorean Theorem tells us that segment CJ is shorter than segment CD . So, segment CJ represents the shortest path to shore."

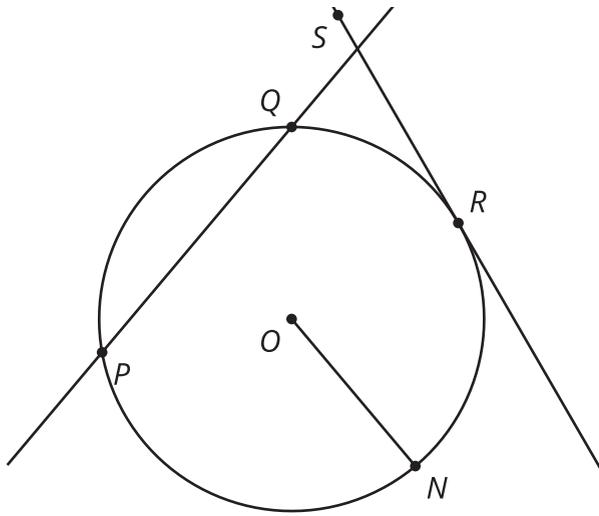
Do you agree with Diego? Explain your reasoning.

Activity Synthesis

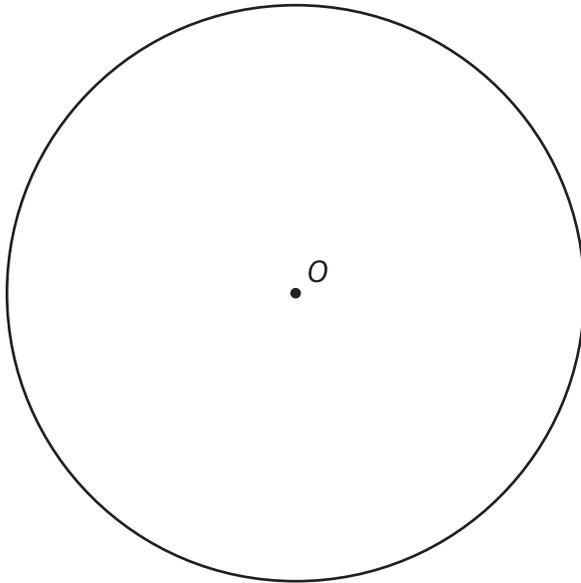


2 A Particular Perpendicular

Images for Launch

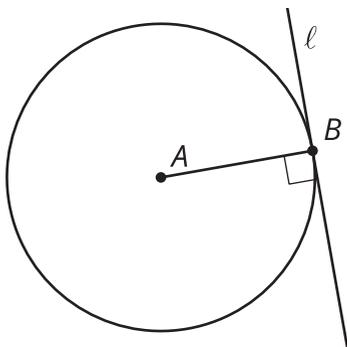
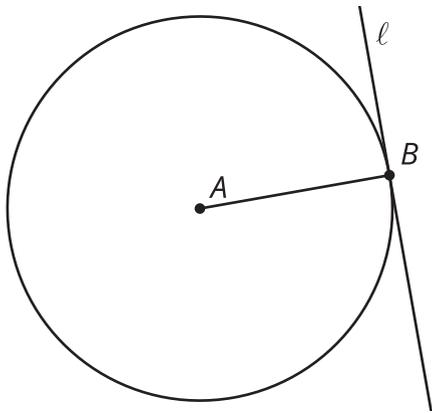


Student Task Statement



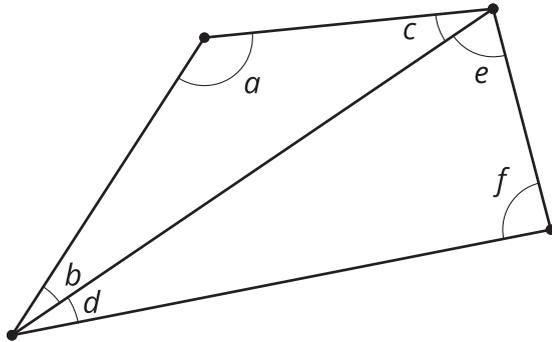
1. Draw a radius in the circle. Mark the point where the radius intersects the circle and label it A .
2. Construct a line perpendicular to the radius that goes through point A . Label this line n .
3. Line n intersects the circle in exactly 1 point, A . Why is it impossible for line n to intersect the circle in more than 1 point?
4. What kind of line, then, is n ?

Activity Synthesis



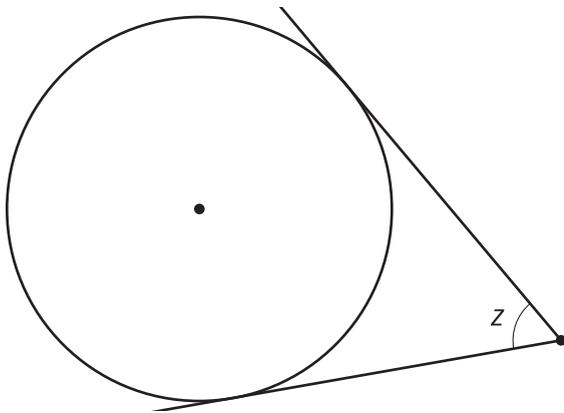
3 Another Angle

Images for Launch



Student Task Statement

The image shows an angle whose rays are **tangent** to a circle.



1. Mark the approximate points of tangency.
2. Draw the 2 radii that intersect these points of tangency. Label the measure of the central angle that is formed w .
3. What is the value of $w + z$? Explain or show your reasoning.

Images for Activity Synthesis

