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| **Key Concept** | **Notes** |
| Tangent line |  |
| Tangent-Radius Theorem | If a line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the radius at the point of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| Problem 1 |  |
| Problem 2 | What is the distance to the horizon that a person can see on a clear day from an airplane 2 mi above the Earth? Earth’s radius is about 4000 mi. |
| Converse of the Tangent-Radius Theorem | If a line in the plane of a \_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a radius at its endpoint on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the line is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| Problem 3 |  |
| Problem 4 |  |
| Theorem | If two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ segments to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ share a common endpoint outside the \_\_\_\_\_\_\_\_\_\_\_\_\_, then the two segments are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| Problem 5 | Circle O is inscribed in ΔABC. What is the perimeter of ΔABC? |

APPLICATION

1. If *m*∠A = 58, what is *m*∠ACB? 2. If *BC* = 8 and *DC* = 4, what is the radius?

3. If *AC* = 12 and *BC* = 9, what is the radius?



4. Circle O is inscribed in ΔPQR, which has a perimeter of 88 cm. What is the length of $\overbar{QY}$?