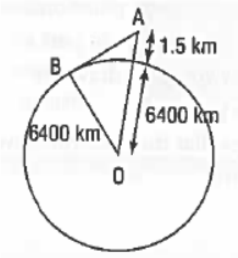
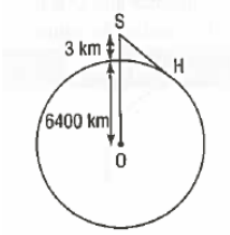
# *Tangents to a Circle*

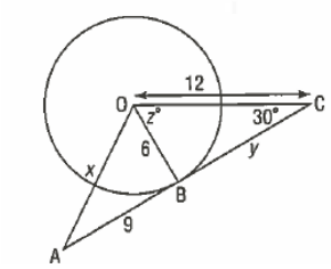
❶ A small aircraft, A, is cruising at an altitude of 1.5 km. The radius of Earth is approximately 6400 km. How far is the plane from the horizon at B? Calculate this distance to the nearest kilometre.




❷ A skydiver, S, jumps from a plane at an altitude of 3 km. The radius of Earth is approximately 6400 km. How far is the horizon, H, from the skydiver when she leaves the plane? Calculate this distance to the nearest kilometre.




❸ Point O is the centre of the circle. Point B is a point of tangency. Determine the values of $x$, $y$, and $z°$. Give the answers to the nearest tenth where necessary.



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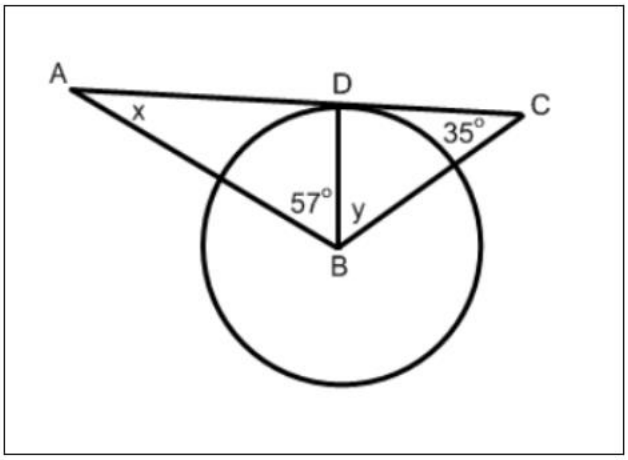
4. In the diagram below, B is the centre of the circle and AC is tangent to the circle at D. Use this diagram to answer the following questions.




a) What are the measures of $\angle BDA$ and $\angle BDC$? Explain how you know.

b) What is the measure of **angle x**? Explain how you know and show the calculation.

c) What is the measure of **angle y**? Explain how you know and show the calculation.

d) If **AD = 8.5 cm** and **AB = 11.2 cm**, calculate the radius of the circle to the nearest tenth of a centimetre.