8.1 Properties of Tangents to a Circle

Dec. 7, 2018

May 7, 2019

Mini Lesson #2:

TASK 1, 2 and 3

Apr 16-11:16 PM

Math 9 Lesson 8.1 (2)

May 21, 2014

8.1 Properties of Tangents to a Circle

Review

What is the radius of a circle?

The distance from the center to the outside of the circle!

What is a tangent?

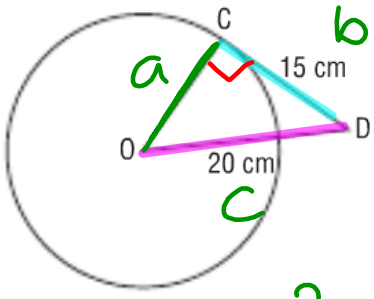
A line that intersects a circle at only **one** point!

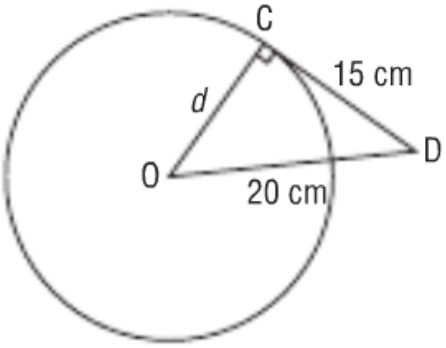
Apr 16-11:49 PM

Example 2 Using the Pythagorean Theorem in a Circle

Point O is the centre of a circle and CD is a tangent to the circle.
CD = 15 cm and OD = 20 cm
Determine the length of the radius OC.
Give the answer to the nearest tenth.

Where is the point of tangency?





$c^2 - b^2 = a^2$

$20^2 - 15^2 = a^2$

$400 - 225 = a^2$

$\sqrt{175} = a^2$

13.2cm

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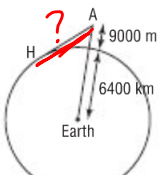
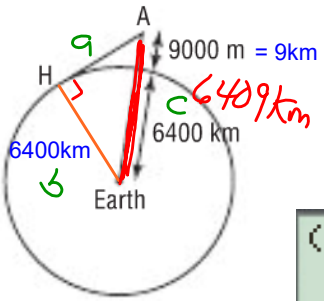
Example 3 Solving Problems Using the Tangent and Radius Property

An airplane, A, is cruising at an altitude of 9000 m.
A cross section of Earth is a circle with radius approximately 6400 km.
A passenger wonders how far she is from a point H on the horizon she sees outside the window.
Calculate this distance to the nearest kilometre.



9km

1m = 100cm
1km = 1000m

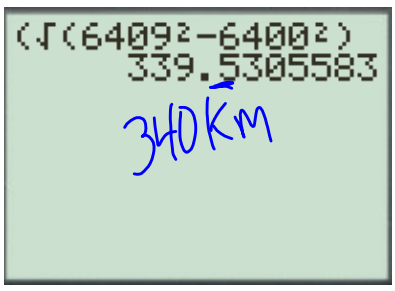


$c^2 - b^2 = a^2$

1m = 100cm
1km = 1000m

$(6409)^2 - (6400)^2 = a^2$

$\sqrt{115281} = a^2$



340km

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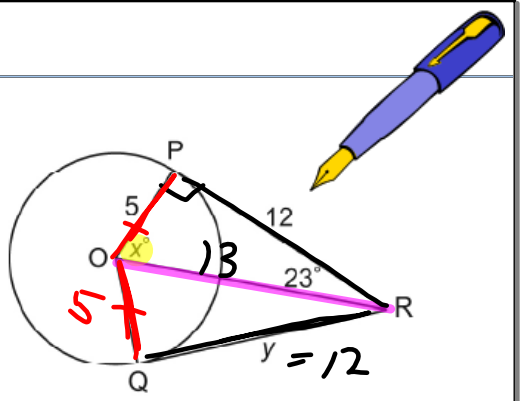
You Try:

Point O is the centre of the circle.
Points P and Q are points of tangency.
Determine the values of x° and y.
Justify your solutions.



$\frac{y}{12} = \frac{5}{5}$

$y = 12$

$x^\circ = 67^\circ$

Tangent Property

$180 - 90 - 23$

$y = 12$

Identical triangles

Feb 13-4:41 PM