Math 9

8.2 Properties of Chords in a Circle

May 27, 2012

May 26, 2014

May 25, 2015

May 15, 2019

Mini Lesson #2:

TASK 1, 2 and 3

Apr 17-8:11 PM

Math 9

8.2 Properties of Chords in a Circle

Review

What is a chord?

A line segment that joins two points on a circle.

How does it relate to the center of the circle?

A line from the center of the circle bisects the chord, dividing the chord into two equal parts.

How does the perpendicular bisect the chord?

A perpendicular bisector of a chord must cross the center of the circle.

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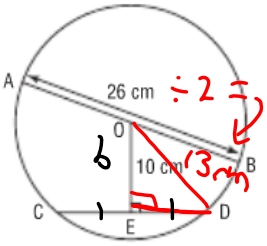
Dec. 12, 2018 May 28, 2012 May 25, 2015

Example 2 **Using the Pythagorean Theorem in a Circle** May 15, 2019

Point O is the centre of a circle.
AB is a diameter with length 26 cm.
CD is a chord that is 10 cm from the centre of the circle.
What is the length of chord CD?
Give the answer to the nearest tenth.



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

$ED^2 = 13^2 - 10^2$

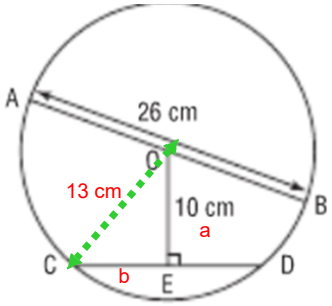
$= 169 - 100$

$ED = \sqrt{69}$

$ED = 8.3\text{cm}$

$\times 2$

Chord CD 16.6cm long



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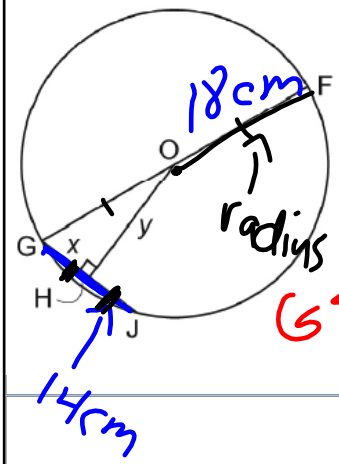
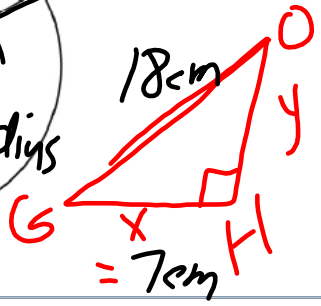
Dec. 15, 2017 May 27, 2016

Practice 2

Point O is the centre of the circle; OF = 18 cm; and GJ = 14 cm.
Determine the values of x and y to the nearest tenth of a centimetre where necessary



The line GJ is called a Chord



$18^2 - 7^2 = y^2$

$324 - 49 = y^2$

$\sqrt{275} = y^2$

$16.6\text{cm} = y$

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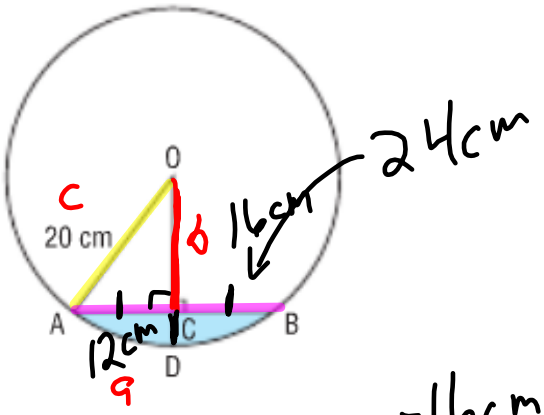
Example 3 Solving Problems Using the Property of a Chord and its Perpendicular

A horizontal pipe has a circular cross section, with centre O. Its radius is 20 cm.
Water fills less than one-half of the pipe.
The surface of the water AB is 24 cm wide.
Determine the maximum depth of the water, which is the depth CD.



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

$b^2 = 20^2 - 12^2$

$b^2 = 400 - 144$

$b^2 = 256$

$b = \sqrt{256}$

$b = 16\text{cm}$

$CD = 20\text{cm} - 16\text{cm}$

$CD = 4\text{cm}$

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