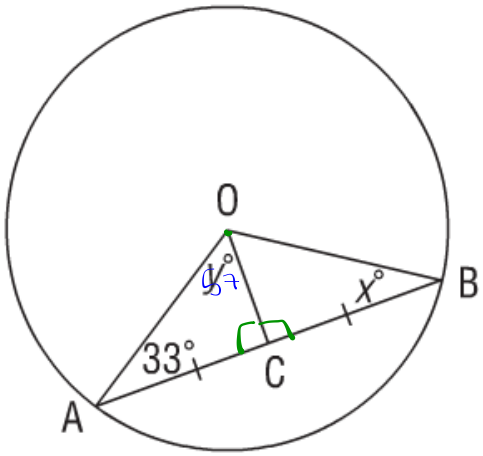
Determining the Measure of Angles in a Triangle

Example #1. Determine the values of x^o and y^o.



$\angle OCA = 90°$ $\angle OCB$ (chord P1, 2, 3)

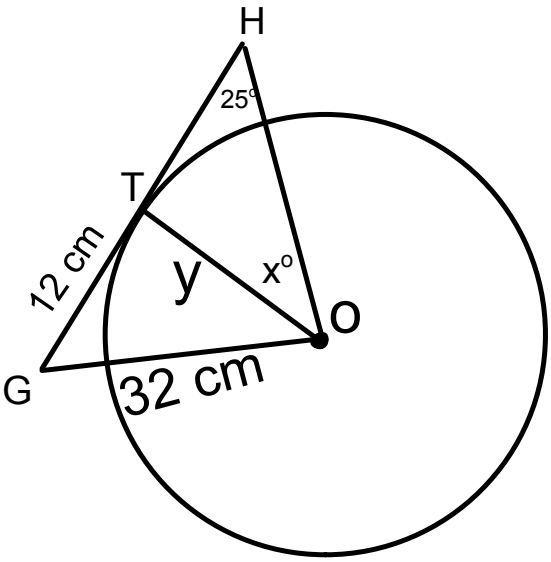
$y = 57°$ $180 - 90 - 33°$ (SATT)

$x = 33°$ (ITT)

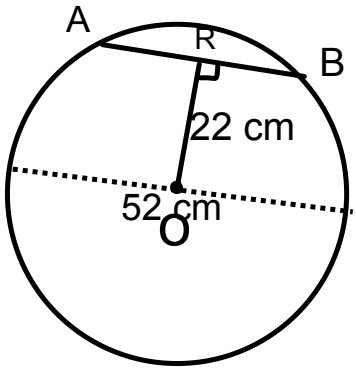
Warm Up

Day 2

Determine the unknowns:



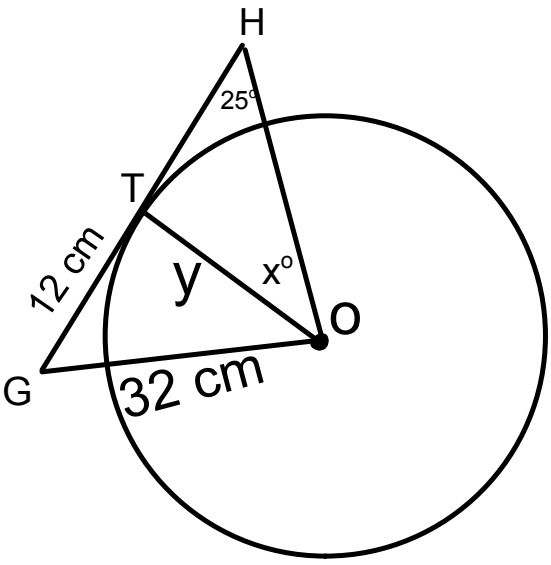
What is the length of the cord AB?



Warm Up

Day 2

Determine the unknowns:



$\angle OTH = 90^\circ$
$\angle OTG = 90^\circ$ } (Tang P)

$x = 65^\circ$ (SATT)

or

$180 - 90 - 25$

$y \Rightarrow$ leg

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

$a^2 = 32^2 - 12^2$

$a^2 = 1024 - 144$

$\sqrt{a^2} = \sqrt{880}$

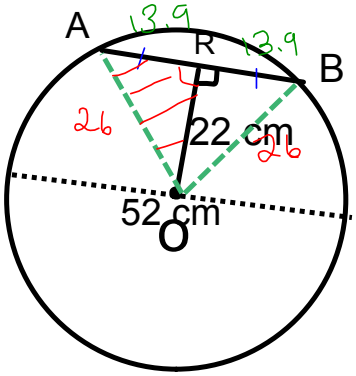
$a = 29.7$ cm

Warm Up

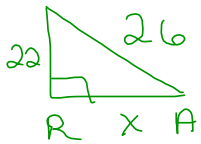
Day 2

Determine the unknowns:

What is the length of the cord AB?



AR = BR (Chord 1)



R A

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

$a^2 = 26^2 - 22^2$

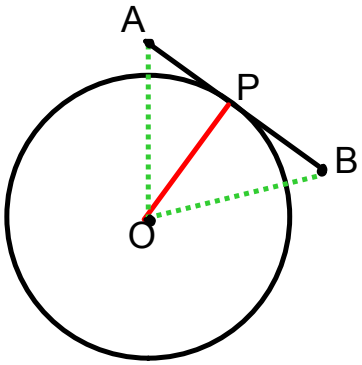
$a^2 = 676 - 484$

$\sqrt{a^2} = \sqrt{192}$

$a = 13.9$

$AB = 2(13.9)$

$= 27.8\text{cm}$



Tangent Properties:

<APO = 90° (Tang P)

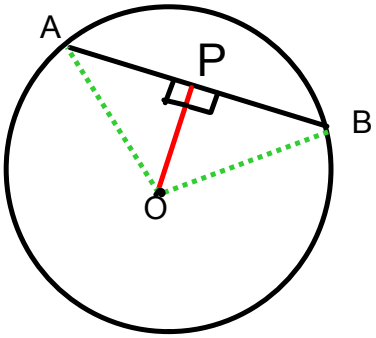
<BPO = 90° (Tang P)

To Solve use:

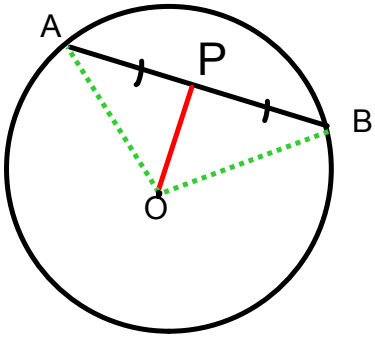
Angle= ___° (SATT)

Side= ___ cm (Pythagorean theorem)

Chord Properties:

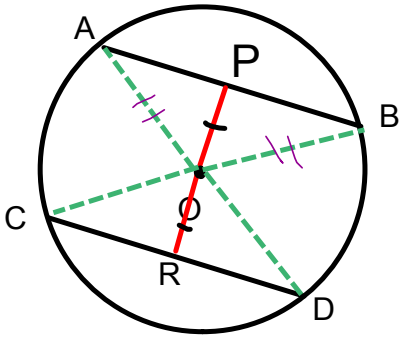


AP = PB (Chord P 1)



<APO = 90° (Chord P 3)

<BPO = 90° (Chord P 3)



AB = CD (Chord P 4)

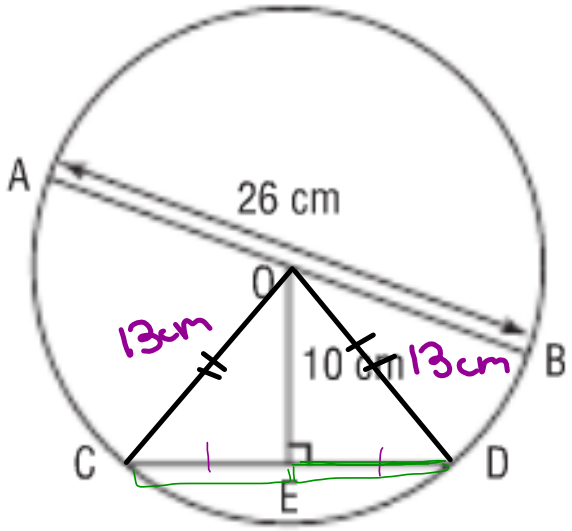
To Solve use:

Angle= ___° (SATT) or (ITT)

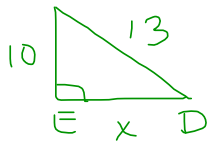
Side= ___ cm (Pythagorean theorem)

Using the Pythagorean Theorem in a Circle

Example #2. What is the length of chord CD, to the nearest tenth?



$CE = ED$ (Chord P)



$ED = ?$

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

$\sqrt{a^2} = \sqrt{13^2 - 10^2}$

$a = 8.3$ cm

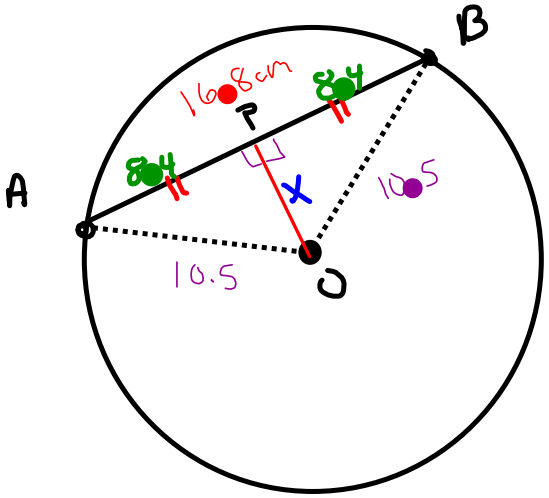
$CD = 2(8.3)$

$= 16.6$

EXAMPLE...

A chord that is 16.8 cm in length, is drawn in a circle that has a ~~diameter of 21~~ cm. How far is the chord from the center of the circle?

r = 10.5



AP = 8.4
PB = 8.4
] (ch P 1,2,3)

$\triangle OP$

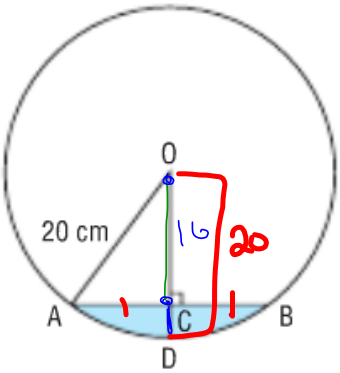
$a^2 = c^2 - b^2$

$\sqrt{a^2} = \sqrt{10.5^2 - 8.4^2}$

$a = 6.3$ cm

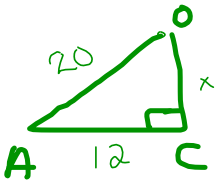
Solving Problems Using the Property of a Chord and its Perpendicular

Example #3. Determine the length of CD.



AB = 24 cm

AC = 12] (Chord P1, 2, 3)
CB = 12



x => leg

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

$\sqrt{a^2} = \sqrt{20^2 - 12^2}$

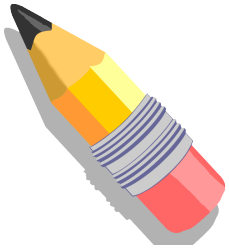
$a = \sqrt{256}$

$a = 16$

CD = 20 − 16

= 4

Homework:



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Questions: 3, 4, 5, 6

6, 7(b), 10(a), 11, 14, 15