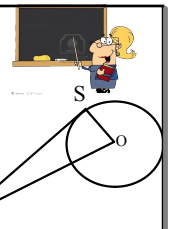
Warm Up



Fill in the blanks

1) The Tangent is WS

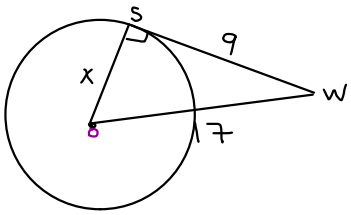
2) The center is labled with the letter O

3) The point of tangency is labled with the letter S

4) The radius is the line SO

SHOW YOUR WORK

5) Find the length of the radius if OW = 17 and SW = 9



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

$a^2 = 17^2 - 9^2$

$a^2 = 289 - 81$

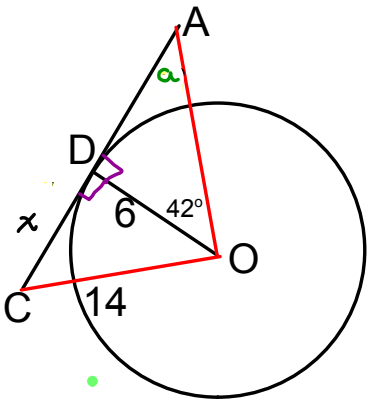
$a^2 = \sqrt{208}$

$a = 14.4$

May 8-9:55 PM

Warm Up

Determine the unknowns:



$\angle ODA = 90^\circ$] Tang P

$\angle ODC = 90^\circ$]

$a = 180 - 90 - 42$

$a = 48^\circ$

$x = \sqrt{14^2 - 6^2}$

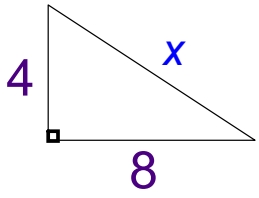
$= 12.6$

Apr 29-8:09 AM

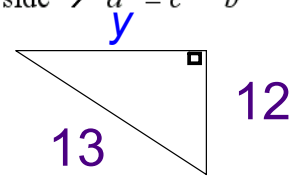
Calculating with **Tangents** We Only Use ...

1) Pythagorean Theorem

finding the hypotenuse → $c^2 = a^2 + b^2$



finding a side → $a^2 = c^2 - b^2$



or

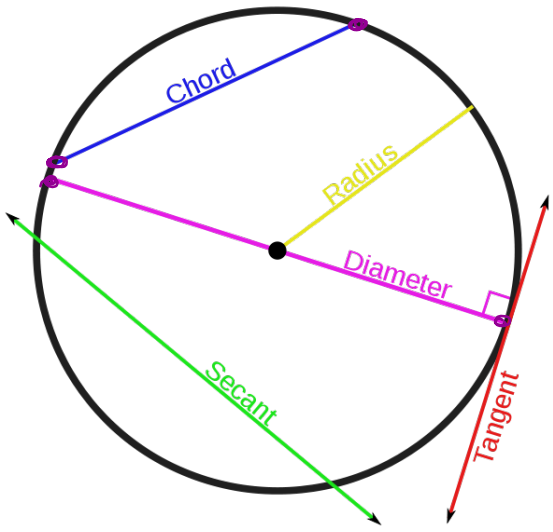
2) Angle Sum of Triangle

Unknown Angle= 180° - 90° - known angle

Oct 3-9:02 AM

Section 8.2

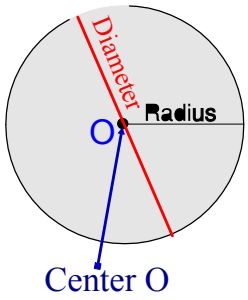
Properties of Chords in Circles

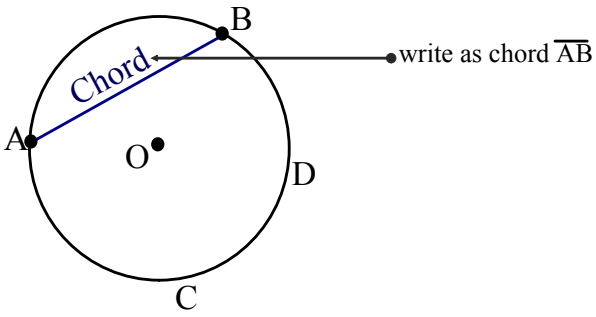


May 2-9:17 AM

Properties of Circles & Terminology:

Circle - the set of all points that are equidistant from a fixed point.

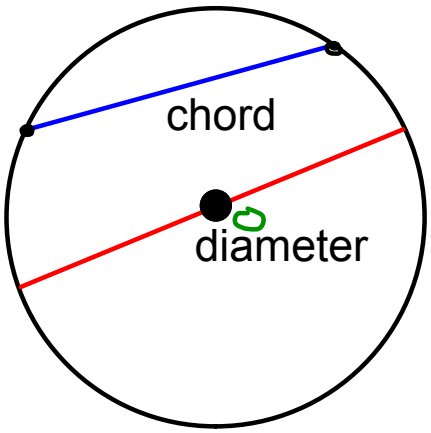




Oct 3-9:26 AM

- A line segment that joins two points on a circle is a **chord**.

- A **diameter** of a circle is a chord through the centre of the circle.

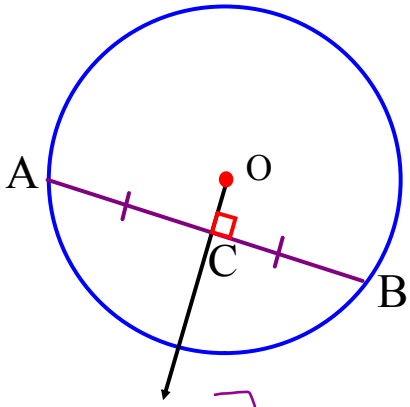


May 2-9:18 AM

Perpendicular to a Chord Property 1

- A line drawn from the centre of a circle that is perpendicular to a chord bisects the chord. (It cuts the chord into two equal parts.)

If OC is perpendicular to AB
Then AC = CB



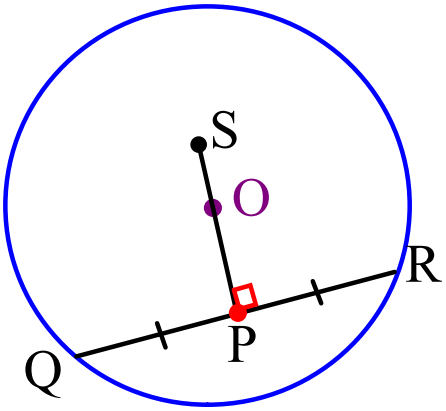
Perpendicular bisector:
→ cuts a cord into two equal pieces at 90° angle

May 2-9:22 AM

Perpendicular to a Chord Property 2

- The perpendicular bisector of a chord in a circle passes through the centre of the circle.

A perpendicular bisector of a chord must go through the centre.

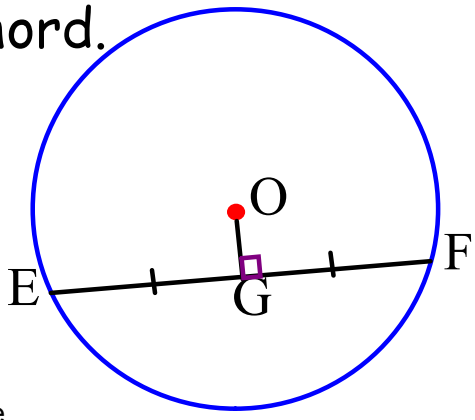


May 2-2:50 PM

Perpendicular to a Chord Property 3

- A line that joins the centre of a circle and the midpoint of a chord is perpendicular to the chord.

If O is the centre and EG = GF, then ∠OGE = ∠OGF = 90^0.



A line that comes from the centre of the circle and cuts the chord into two equal pieces is the perpendicular bisector

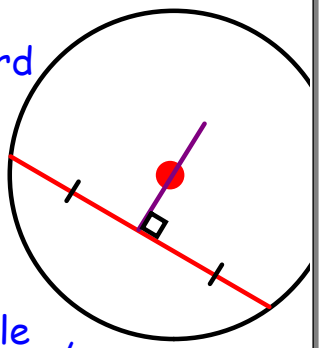
May 2-3:12 PM

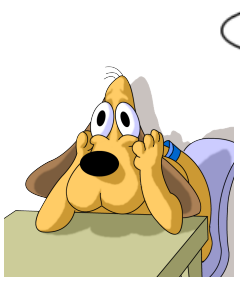
STOP!

Aren't they all saying the same thing?

Yes!
We know
that a

perpendicular bisector of a cord





hits the cord at a 90 degree angle ,

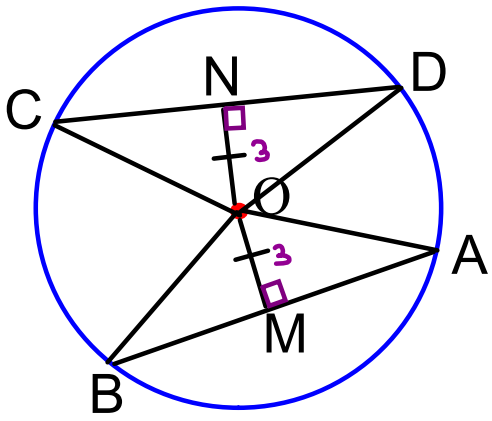
the chord is cut in two equal pieces,

and passes through the centre.

May 3-9:13 AM

Perpendicular to a Chord Property 4

- Two chord that are equal distance from the center must be the same



If OM = ON,
then AB = CD
OR
If AB = CD,
then OM = ON

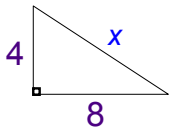
Apr 25-2:29 PM

Working With Chords Lengths We Only Use ...

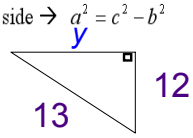
Note: the only reason they give you diameter is so you can use the radius

1) Pythagorean Theorem

finding the hypotenuse → $c^2 = a^2 + b^2$



finding a side → $a^2 = c^2 - b^2$



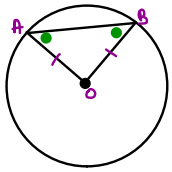
or

2) Angle Sum of Triangle

Unknown Angle= 180° - 90° - known angle

or

3) Isosceles Triangle



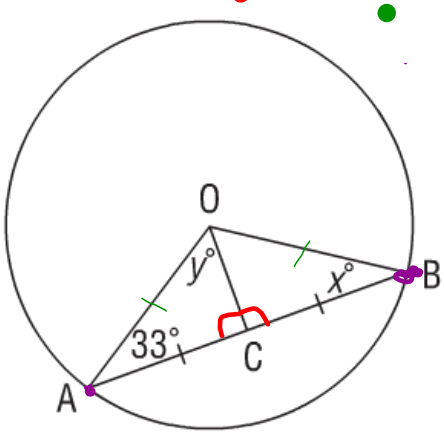
OA=0B⇒ radii

<OAB = <OBA (IsoΔ)

Oct 3-9:02 AM

Determining the Measure of Angles in a Triangle

Example #1. Determine the values of x° and y°.



$\angle OCA = 90^\circ$
$\angle OCB = 90^\circ$
} Chord 1, 2, 3

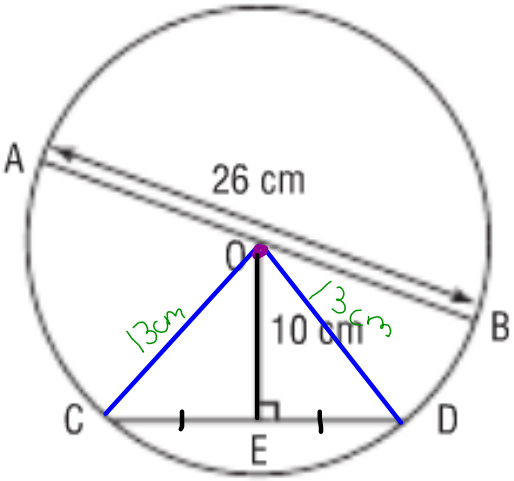
$x = 33^\circ$ (Iso $\triangle$)

$y = 57^\circ$ (180 − 90 − 33) or (SATT)

May 2-3:17 PM

Using the Pythagorean Theorem in a Circle

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



CE = DE (chord 1, 23)

May 2-4:05 PM