Circle Chord Activity

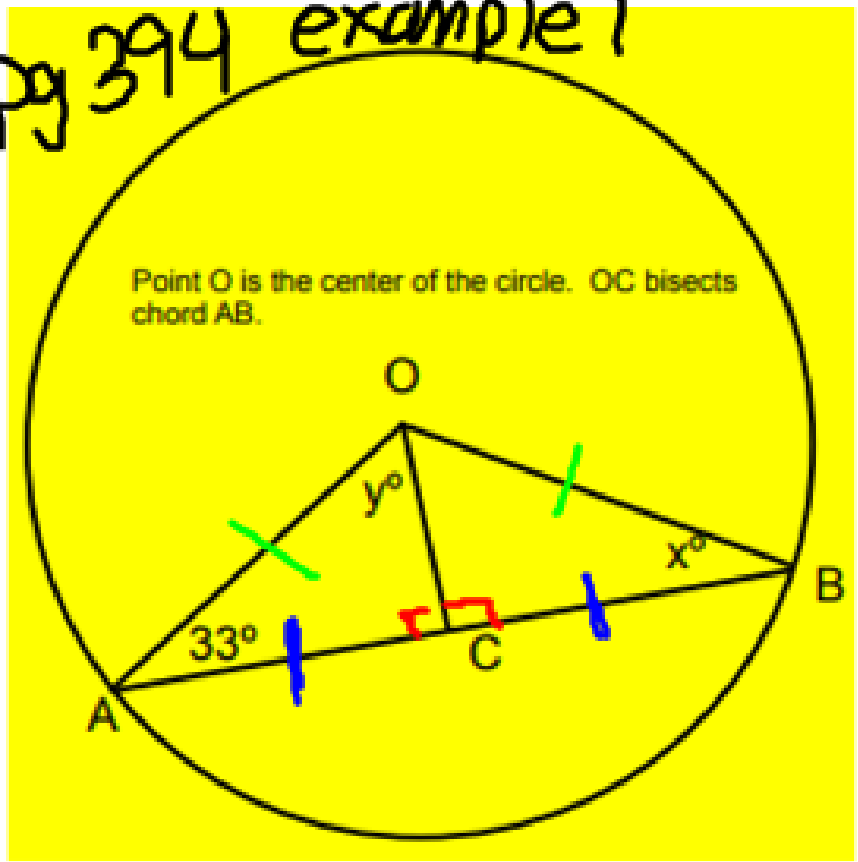
- goes through the centre
- cuts the chord exactly in half
- always make 90° angles

Circle Chord Activity

- It always goes through the centre
- It always cuts the chord exactly in half (BISECTS)
- It makes 90 degree angles between the new line and the chord. (PERPENDICULAR)

NOTE: If 2 of these 3 things are true it forces the third to be true

Pg 394 example 1



$33^\circ + 90^\circ + y^\circ = 180$

$123^\circ + y^\circ = 180$

$-123 \quad -123$

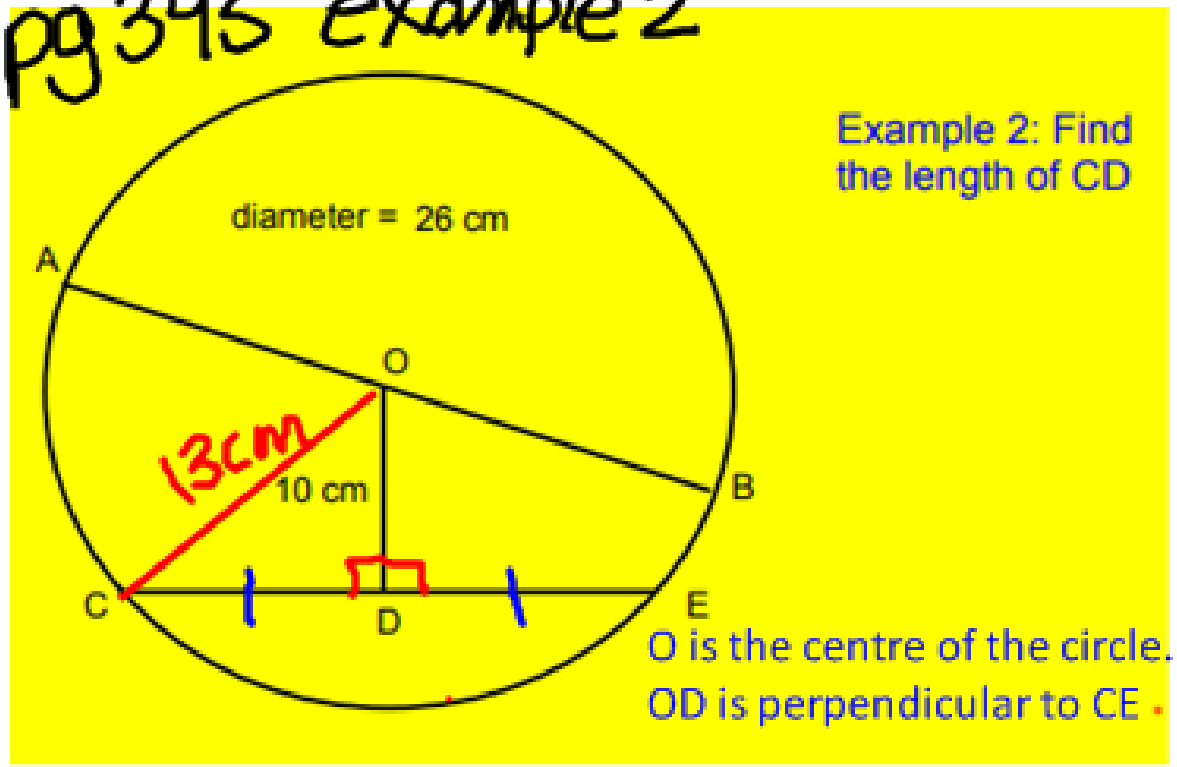
$y^\circ = 57^\circ$

blue lines are the same because oc bisects AB

Green lines = both radios

$X = 33^\circ$ because both triangles have all the same sides and X and 33 are both between green and blue sides

pg 395 example 2



Radius = Diameter ÷ 2

= 26 ÷ 2

= 13

$(CD)^2 + 10^2 = 13^2$

$(CD)^2 + 100 = 169$

$-100 \quad -100$

$\sqrt{(CD)^2} = \sqrt{69}$

$CD = 8.3\text{cm}$

RULES ABOUT CIRCLES

1. radius and the tangent always make a right angle. (90 degrees)

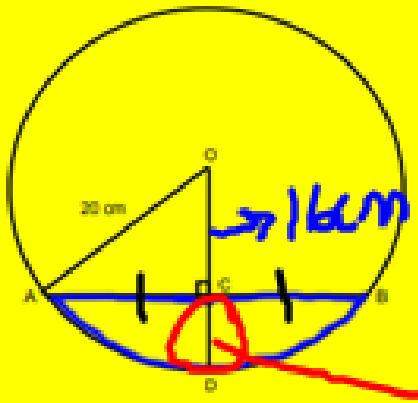
2. A radius or diameter that bisects a chord creates a 90 degree angle where it bisects

OR

A radius or diameter that makes a 90 degree angle with a chord also bisects that chord

OR

A line that creates a 90 degree angle with a chord and bisects that chord is guaranteed to pass through the centre of the circle



Example 4: Problem Solving

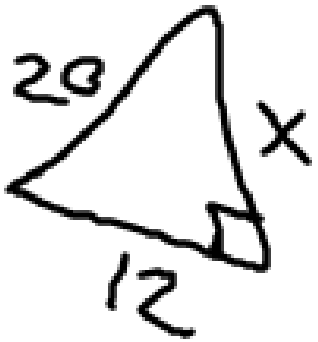
A horizontal pipe has a circular cross section,with center O. Its radius is 20 cm. Water fills less than one half of the pipe. The surface of the water AB is 24 cm wide. Determine the maximum depth of the water which is depth CD.

radius - 16cm

20cm - 16cm

4cm

$24 \div 2 = 12$



$x^2 + 12^2 = 20^2$

$x^2 + 144 = 400$

$-144 \quad -144$

$\sqrt{x^2} = \sqrt{256}$

$x = 16$