Warm-Up

A wheel has radius 30 cm. It rolls along the ground toward a tack that is 58 cm from the point where the wheel currently touches the ground

What is the distance, d, between the tack and the closest point on the circumference of the wheel? Give the answer to the nearest tenth of a centimetre.

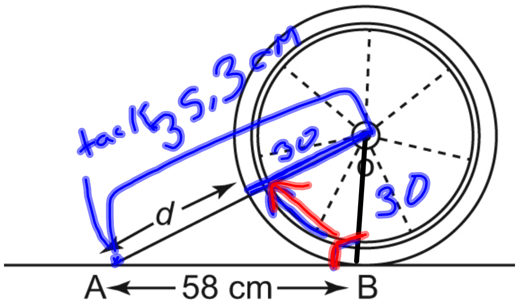
$c^2 = a^2 + b^2$

$= 30^2 + 58^2$

$= 900 + 3364$

$c^2 = 4264$

$c = 65.3$ cm

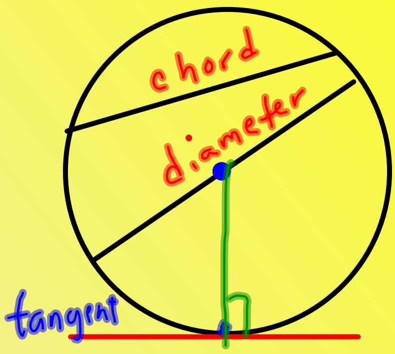


SECTION 8.2
PROPERTIES OF A CHORD

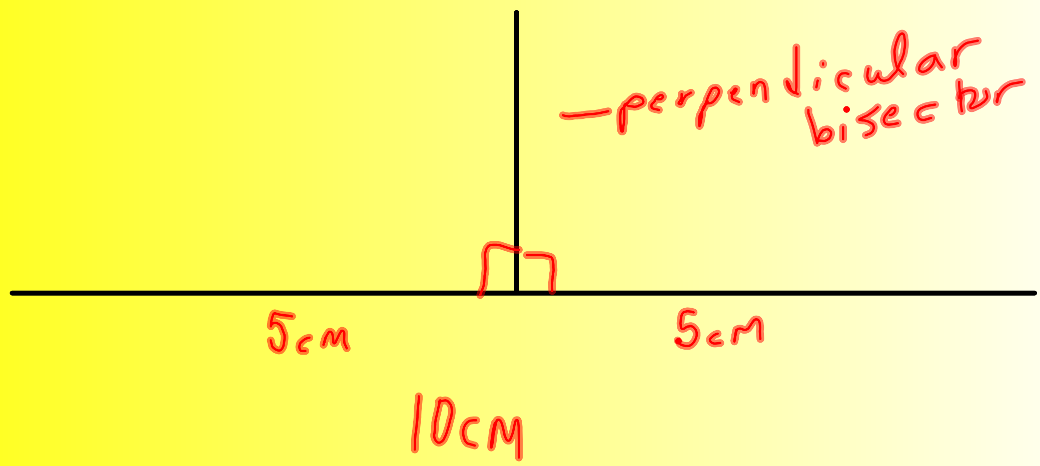
A line segment that joins two points on a circle is a **CHORD**.

A diameter of the circle is a chord that goes through the center of the circle.

Where is the tangent?



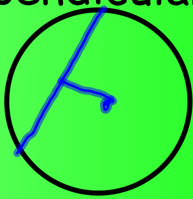
A perpendicular bisector intersects a line segment at 90° and divides the line segment into two equal parts.



Properties of a CHORD

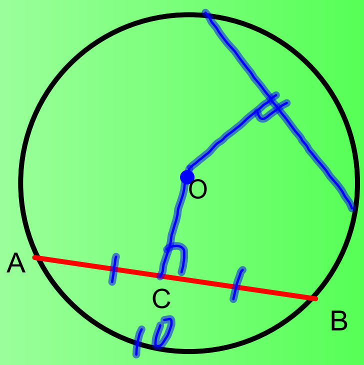
1. Perpendicular to chord Property 1

The perpendicular from the center of a circle to a chord bisects the chord [that is the perpendicular divides the chord into two equal parts.]



AC = CB

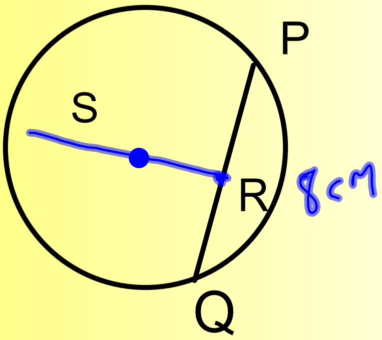
<ACO = <BCO



Perpendicular to Chord Property 2

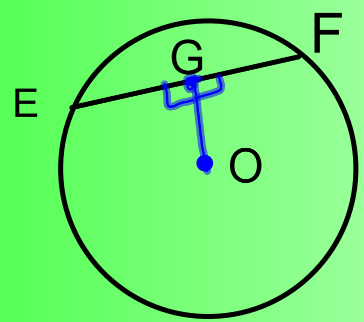
The perpendicular bisector of a chord in a circle passes through the center of the circle.

When PR = QR and <SRP =<SRQ then SR passes through O [the center of the circle]



3. Perpendicular to Chord Property 3

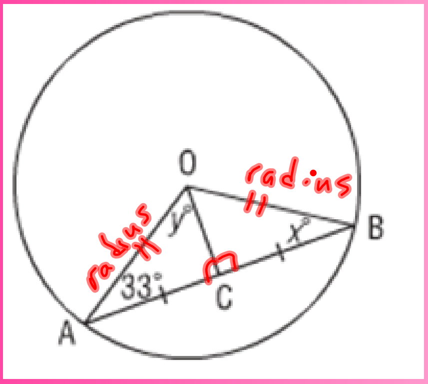
A line that joins the center and the midpoint of a chord is perpendicular to the chord.



EG = GF

Let's apply these properties of a chord...

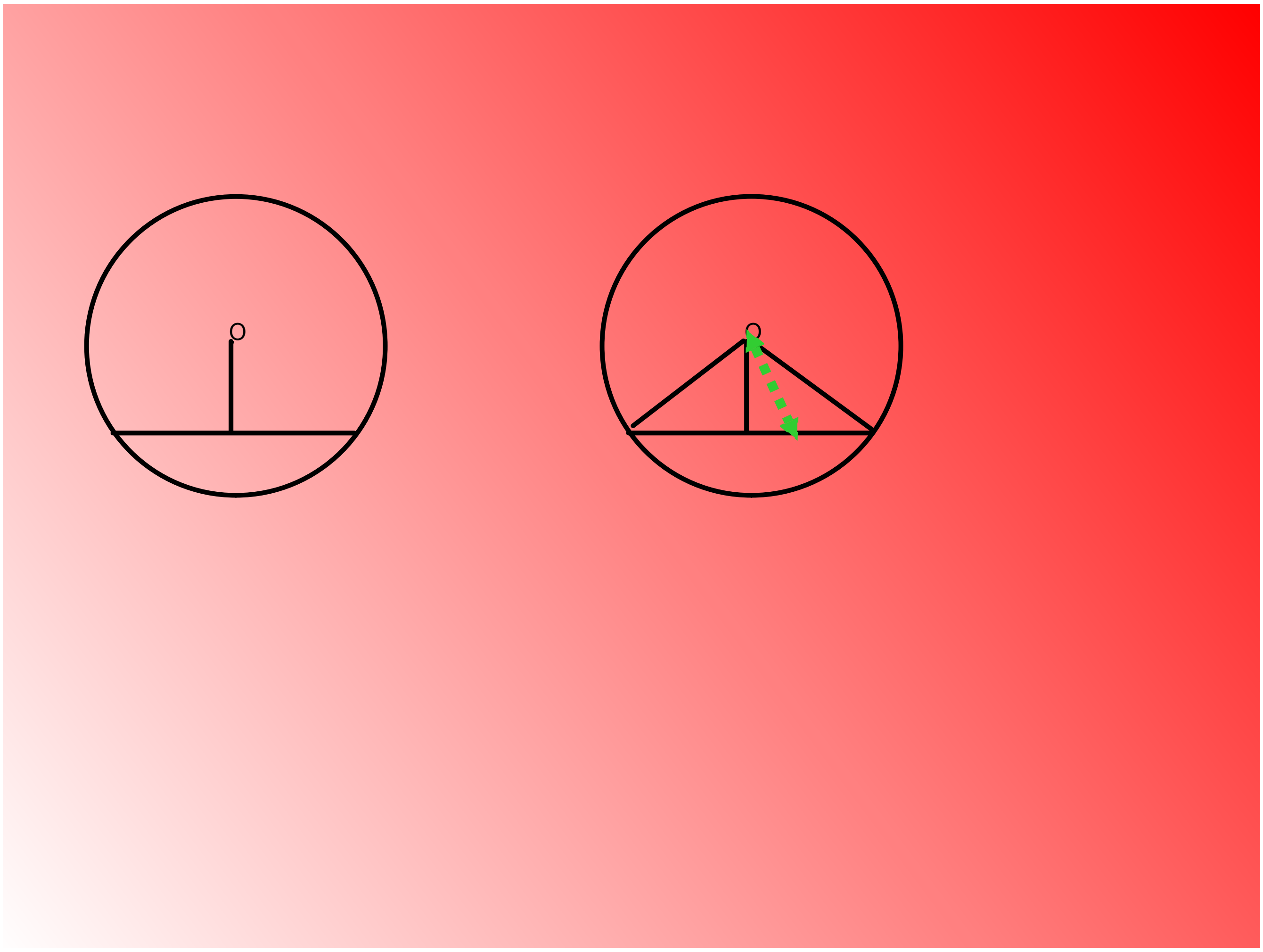
Find the value of y and x



$x^{\circ} = 33^{\circ}$

$y^{\circ} = 57^{\circ}$

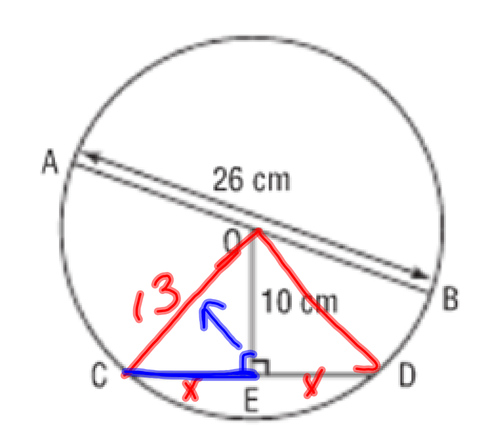
$33 + 90 + \_\_ = 180$


O
O

AB is a diameter with a length of 26 cm.

CD is a chord that is 10 cm from the circle

Find the length of CD. Give the answer to the nearest tenth.



16.6

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

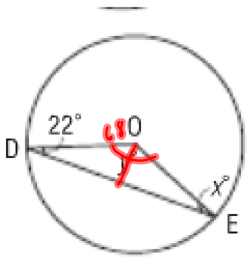
$a^2 = 13^2 - 10^2$

$a^2 = 169 - 100$

$a^2 = 69$

$a = 8.3$

b)



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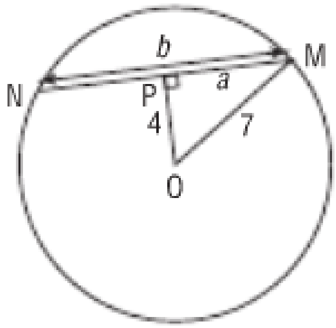
$y^\circ = 136^\circ$

$x^\circ = 22^\circ$

b)



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#5 b.

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

$a^2 = 7^2 - 4^2$

$a^2 = 49 - 16$

$a = 33$

$a = 5.74$

$b = 11.489$

$b = 11.5$

Homework

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3, 4[a][c], 5[a],