# Curriculum Outcomes:

(SS1) Solve problems and justify the solution strategy using circle properties, including: the perpendicular from the centre of a circle to a chord bisects the chord; the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc; the inscribed angles subtended by the same arc are congruent; a tangent to a circle is perpendicular to the radius at the point of tangency.

Student Friendly:
How we can use the tangent properties to solve for unknown lengths. (Tangent properties go hand and hand with Pythagorean theorem)
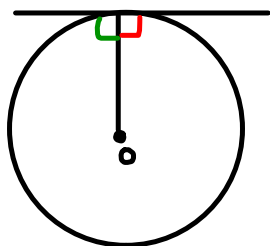
Wrap Up to Tangents

$$< \_\_\_ = 90° \text{ (Tang P)}$$

Only two ways to solve Tangent Problems:

1) Angle sum of a triangle (SATT)

   180° - 90° - given angle = unknown angle

2) Pythagorean Theorem

   $c = \sqrt{a^2 + b^2}$ Hypotenuse

   $a = \sqrt{c^2 - b^2}$ Leg

Section 8.1 Warm Up

philipmartin.info
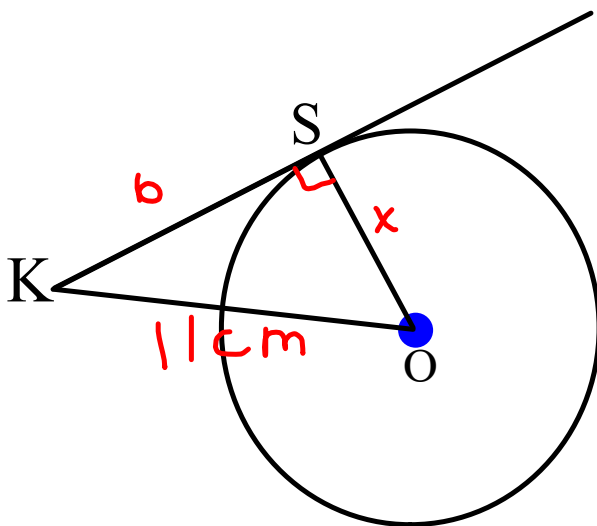
SK is a tangent determine the length of SO if given the following:
KO is 11cm and KS is 6 cm

SHOW ALL WORK AND COPY THIS DOWN

S

6

x

K

11 cm

O

$\angle KSO = 90°$ (Tang P)

$SO \Rightarrow$ leg

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

$a^2 = 11^2 - 6^2$
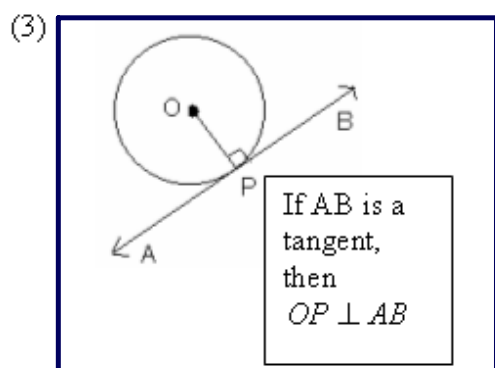
$a^2 = 121 - 36$

$\sqrt{a^2} = \sqrt{85}$

$a = 9.2$ cm

Tangent Property:

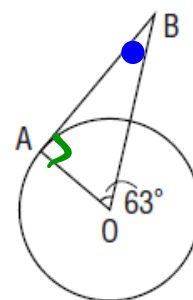A tangent to a circle is perpendicular to the radius at the point of tangency. $<APO = <BPO = 90°$

(3)

If AB is a tangent, then
$OP \perp AB$

Solving Problems Using the Tangent and Radius Property

Presenting...

Point O is the centre of a circle
and AB is a tangent to the circle.
In $\triangle OAB$, $\angle AOB = 63°$
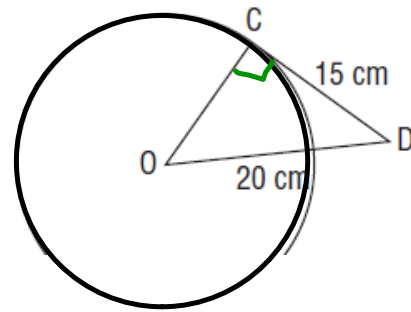Determine the measure of $\angle OBA$.

▶ **A Solution**

$\angle \underline{B} \underline{A} \underline{O} = 90°$ (Tang P)

$\angle OBA = 180 - 90 - 63$

$= 27°$ (SATT)

Solving Problems Using the Tangent and Radius Property

Presenting...

Point O is the centre of a circle
and CD is a tangent to the circle.
CD = 15 cm and OD = 20 cm
Determine the length of the radius OC.
Give the answer to the nearest tenth.

$\angle OCD = 90°\ (Tang\ P)$
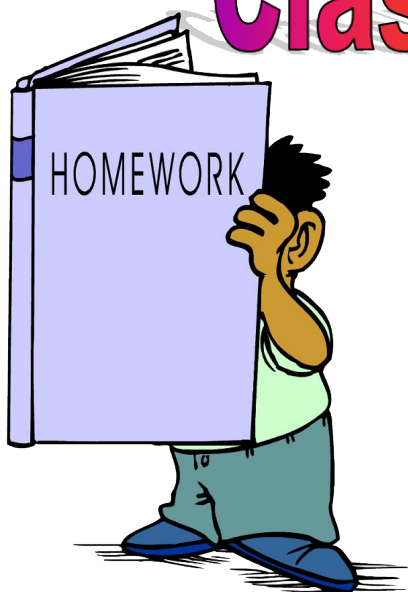
$OC \Rightarrow \underline{leg}$

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

$$a^2 = 20^2 - 15^2$$

$$a^2 = 400 - 225$$

$$\sqrt{a^2} = \sqrt{175}$$

$$a = 13.2\ cm$$

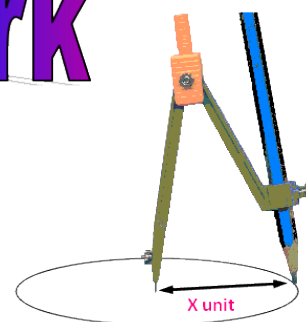# Class/Homework

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Please provide sketches for each

3 ab
4a
5abc sketch
6abc sketch
7ab sketch

8
9
13
14
16 c
17
20 (try)

Provide
Sketches

X unit

Attachments

Section 8.1 Sticky Note Activity.docx