

To name a line...use 2 letters.

To name an angle...use 3 letters

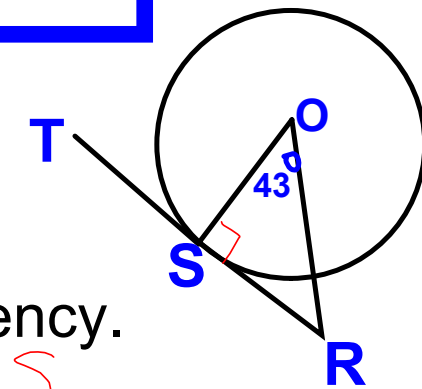
1. Identify the radius.

OS, SO

2. Identify the tangent.

RT, TR

3. Identify the point of tangency.



4. List the three angles found in Triangle OSR.

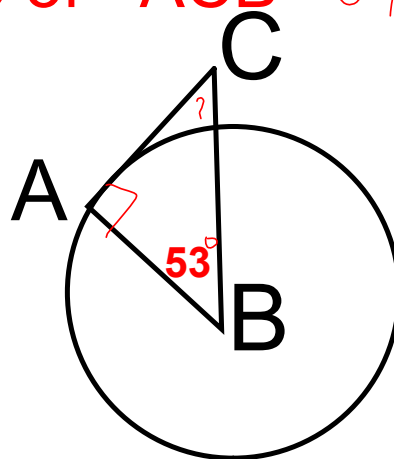
$\angle OSR$ $\angle OSR$ $\angle OSR$

5. Find the value of each angle in #4.

$$\begin{array}{r} \angle OSR = 43^\circ \\ \angle OSR = 90^\circ \\ \angle OSR = 47 \\ \hline 180^\circ \end{array}$$

a) Find the value of $\angle ABC = 53^\circ$

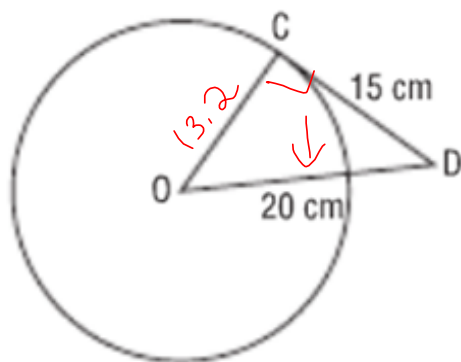
b) Find the value of $\angle ACB = 37^\circ$



$$53 + 90 + _ = 180$$

c. Identify the tangent AC
 CA

Determine the length of OC to the nearest tenth.

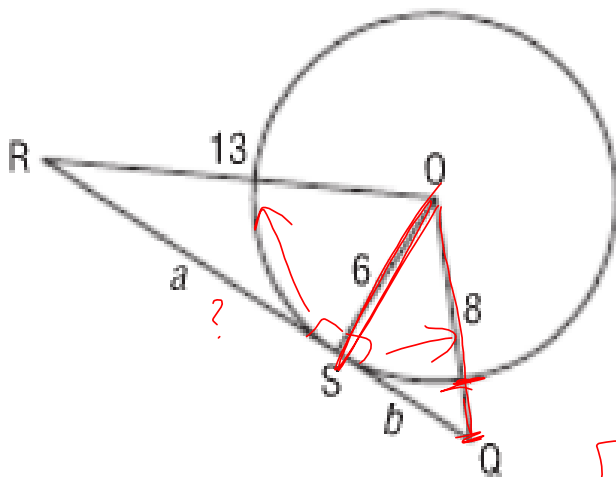


$$c^2 = a^2 + b^2 \quad \text{OR} \quad a^2 = c^2 - b^2$$

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

$$a^2 = 400 - 225$$
$$\sqrt{a^2} = \sqrt{175}$$

$$a = 13.2$$



Find RS and SQ

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

$a^2 = c^2 - b^2$
 $a^2 = 13^2 - 6^2$
 $a^2 = 169 - 36$
 $\sqrt{a^2} = \sqrt{133}$

$a = 11.5$

RS

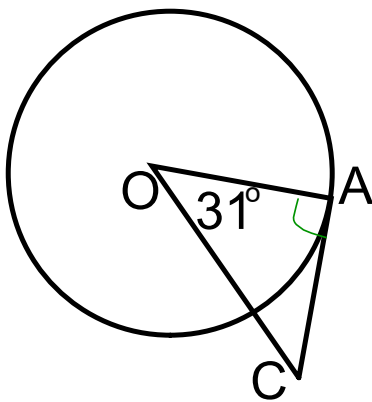
$a^2 = c^2 - b^2$
 $a^2 = 8^2 - 6^2$
 $a^2 = 64 - 36$
 $\sqrt{a^2} = \sqrt{28}$
 $a = 5.3$
 or 5.29

What is the length of the tangent?

$11.5 + 5.3 = 16.8$

Angle Question

[sum angles triangle = 180°]



A. Name and give the value for each angle.

$\angle OAC = 90^\circ$ $\angle AOC = 31^\circ$

B. Name the radius

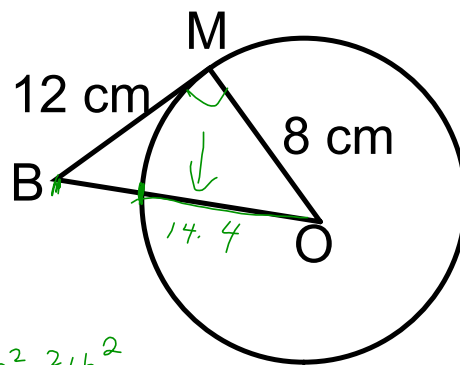
OA

C. Name the Tangent

AC

Side Question

[$c^2 = a^2 + b^2$ or $a^2 = c^2 - b^2$]



A. Find the value of BO

B. What is the value of the radius? 8 cm (MO)

C. What is the distance from the outside of the circle to B? 6.4

$c^2 = a^2 + b^2$
 $c^2 = 12^2 + 8^2$
 $c^2 = 144 + 64$
 $c = \sqrt{208}$
 $c = 14.4$

Summary of Radius-Tangent Properties

One of the two will be used to solve questions involving a tangent and radius

1. Finding an unknown angle:

The sum of the angles in a triangle is 180°

$$\text{Given angle} + 90^\circ + \underline{\hspace{2cm}} = 180^\circ$$

2. Finding an unknown side of a Right Triangle

Pythagorean Theorem

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

WHEN A TANGENT AND RADIUS MEET = 90°

Homework/Classwork



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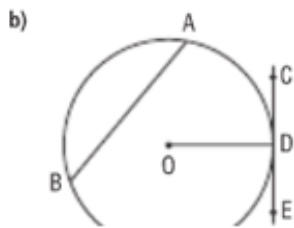
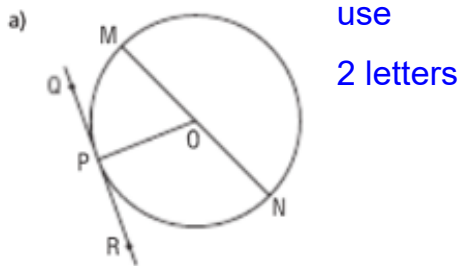
3, 4, 5, 6, 7

8,12,13,14

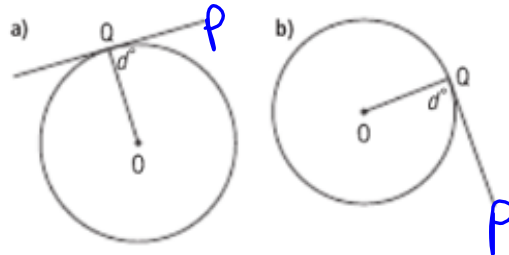
*****NAME ALL ANGLES USING THREE LETTERS!!!!!!!!!!!!!!**

Page 533 Answers!!!

3. In each diagram, point O is the centre of each circle. Which lines are tangents?

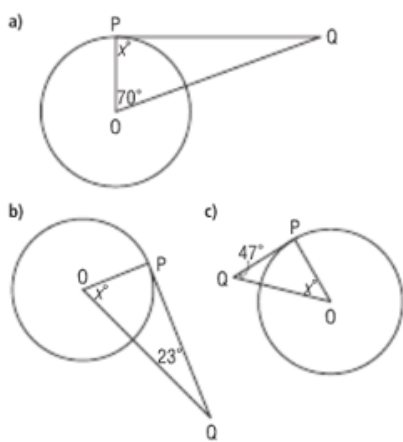


4. Point Q is a point of tangency. Point O is the centre of each circle. What is each value of d° ? Use 3 Letters

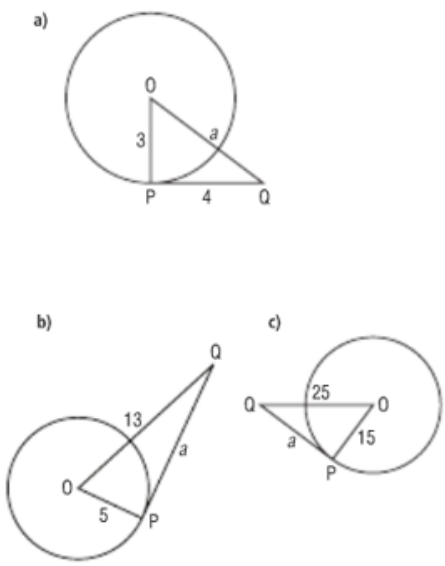


6. Point P is a point of tangency and O is the

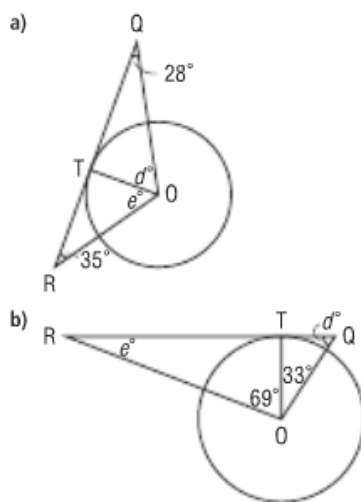
5. Point P is a point of tangency and O is the centre of each circle. Determine each value of x° . ← Use 3 Letters to name angle



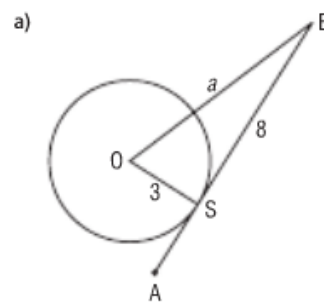
6. Point P is a point of tangency and O is the centre of each circle. Determine each value of a . ← Name side two letters



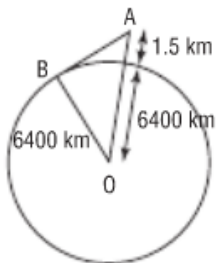
7. Point T is a point of tangency and O is the centre of each circle. Determine each value of d° and e° .



8. Point S is a point of tangency and O is the centre of each circle. Determine each value of a to the nearest tenth.



12. A small aircraft, A, is cruising at an altitude of 1.5 km. The radius of Earth is approximately 6400 km. How far is the plane from the horizon at B? Calculate this distance to the nearest kilometre.



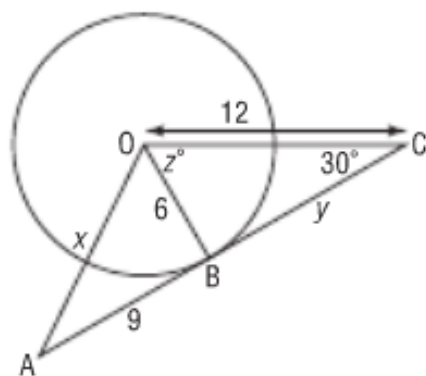
13. A skydiver, S, jumps from a plane at an altitude of 3 km. The radius of Earth is approximately 6400 km. How far is the horizon, H, from the skydiver when she leaves the plane? Calculate this distance to the nearest kilometre.



196 KM

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Point O is the centre of the circle. Point B is a point of tangency. Determine the values of x , y , and z° . Give the answers to the nearest tenth where necessary. Justify the strategies you used.



Name Angle
With 3 Letters!

side x

side y

angle z

17. A circular mirror with radius 20 cm hangs by a wire from a hook. The wire is 30 cm long and is a tangent to the mirror in two places. How far above the top of the mirror is the hook? How do you know?

