Warm-Up

*The ~~diameter~~ radius of the circle is ~~15~~ cm   7,5 cm

*What is the tangent? __BA__ or AR

*What is the point of tangency? ___P___

* Find x°   Name using 3 Letters!

*Given the hypotenuse is 12. Find the unknown side
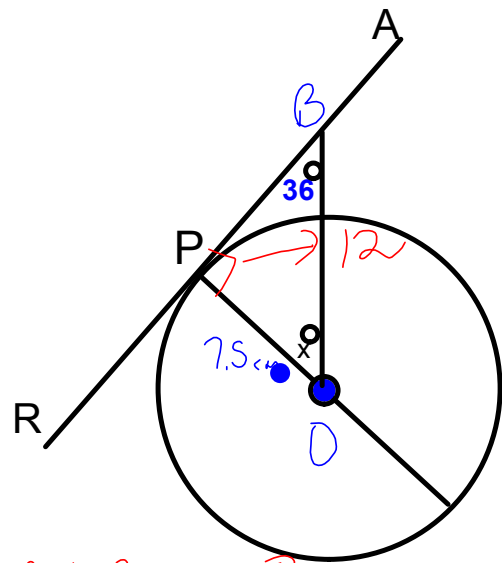
$a^2 = c^2 - b^2$

$a^2 = 12^2 - 7.5^2$

$a^2 = 144 - 56.25$

$\sqrt{a^2} = \sqrt{87.75}$

$a = 9.4 \, cm$

A
B
36
P
12
R
7,5 cm
x
O

$\angle POB = 54°$

$90 + \_\_ + 36 = 180$

. 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.
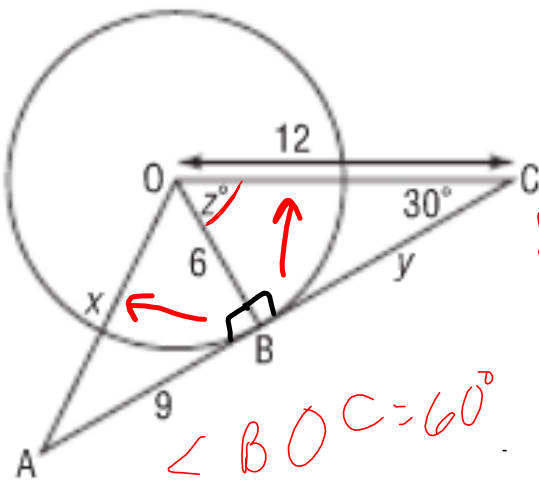
side x

$$c^2 = a^2 + b^2$$
$$c^2 = 9^2 + 6^2$$
$$c^2 = 81 + 36$$
$$\sqrt{c^2} = \sqrt{117}$$
$$c = 10.8$$

angle z°

$$90 + 30 + \underline{60°} = 180°$$

side y

$$a^2 = c^2 - b^2$$
$$a^2 = 12^2 - 6^2$$
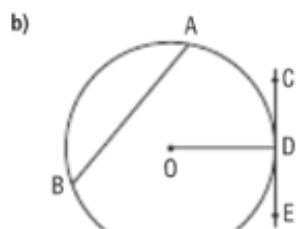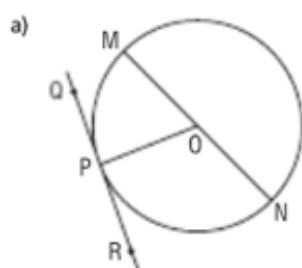$$a^2 = 144 - 36$$
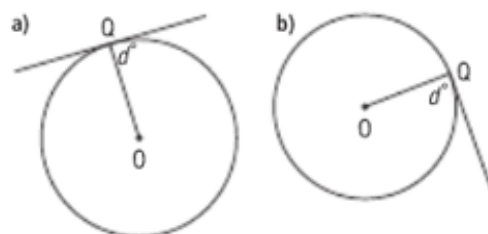$$\sqrt{a^2} = \sqrt{108}$$
$$a = 10.4$$

Name Angle
With 3 Letters!

12

O

z°

30°

6

y

C

x

B

9

A

$\angle BOC = 60°$

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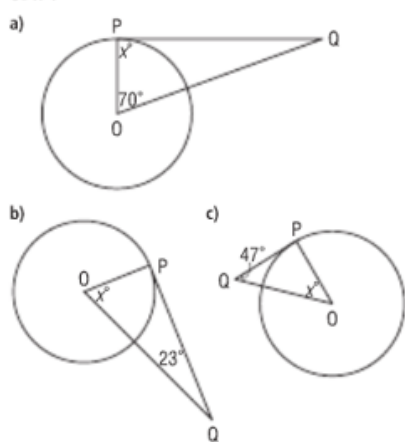
a)

b)

4. Point Q is a point of tangency. Point O is the centre of each circle. What is each value of $d°$?
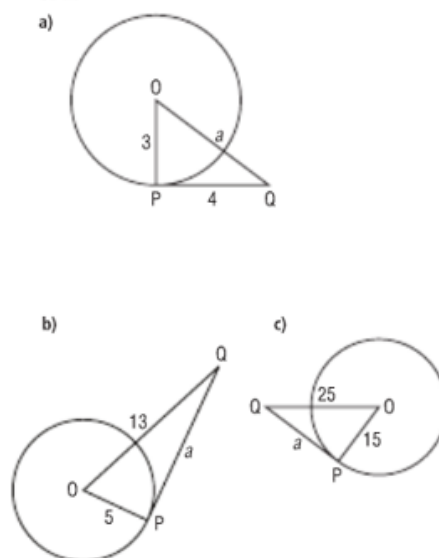
a)

b)

6. Point P is a point of tangency and O is the
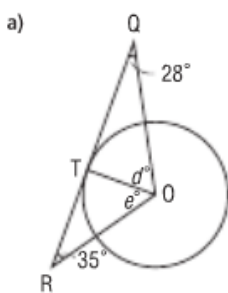
5. Point P is a point of tangency and O is the centre of each circle. Determine each value of $x°$.
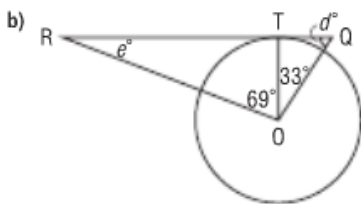
a)

b)

c)

6. Point P is a point of tangency and O is the centre of each circle. Determine each value of a.

a)

b)

c)

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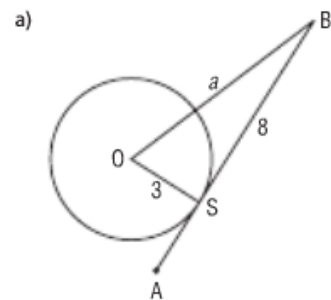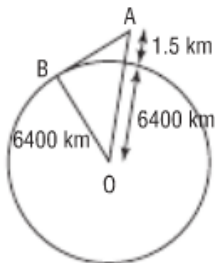
a)

b)

< TOQ

< TOR

TRO

TQO

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.

a)

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.

A
1.5 km
B
6400 km
6400 km
0

139 km

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.

S
3 km
H
6400 km
0

196 KM

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?

The hook is 5 cm above the mirror

Hook

15 cm   15 cm

20 cm   20 cm

Page 533 Answers

① #8, 12, #13, #17

② Assignment

*NAME ALL ANGLES
WITH 3 LETTERS!