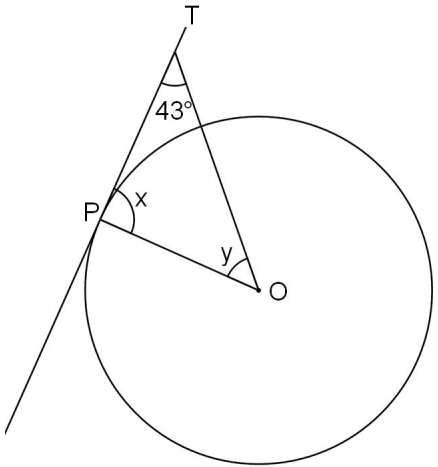
Circle Theorems: A tangent and radius are perpendicular at the point of contact

Maths

Mr Chan

A tangent and radius are perpendicular at the point of contact

1. TP is a tangent and OP is the radius of the circle.

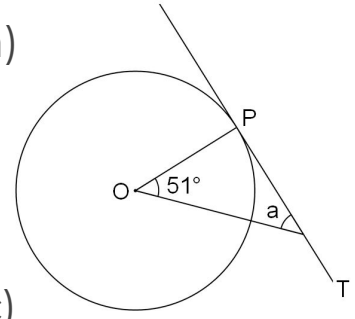


Work out the value of angle x and y.

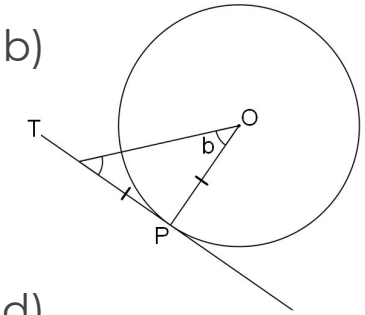
Give a reason for your answers.

2. Work out the size of each angle marked with a letter.

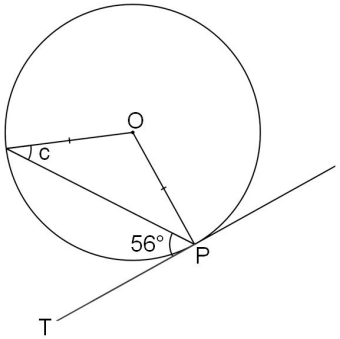
a)



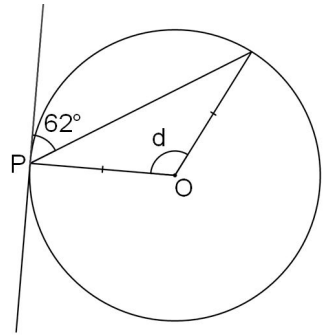
b)



c)

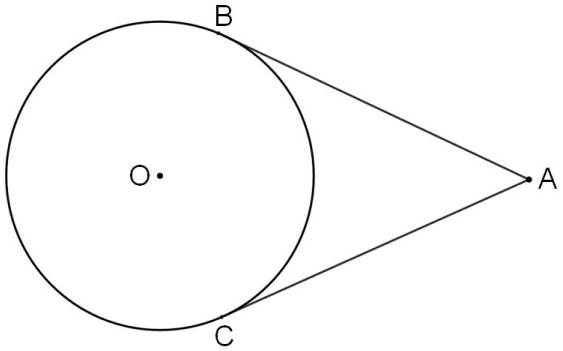


d)



A tangent and radius are perpendicular at the point of contact

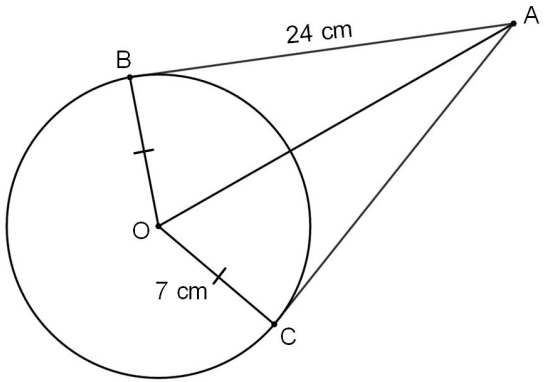
3. AB and AC are tangents to the circle.



The length of AB = 12 cm.

Work out the length of AC.

4. AB and AC are tangents to the circle. The circle has a radius of 7 cm.



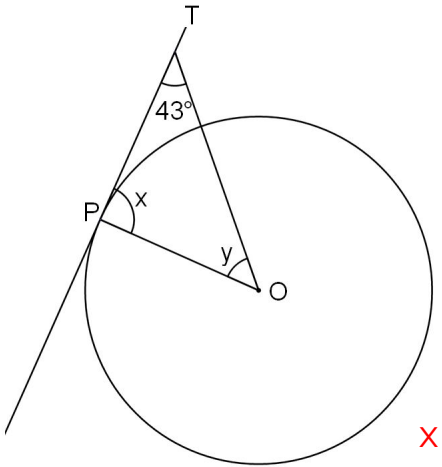
a) Work out the length of AC.

b) Work out the length of AO.

Answers

A tangent and radius are perpendicular at the point of contact

1. TP is a tangent and OP is the radius of the circle.



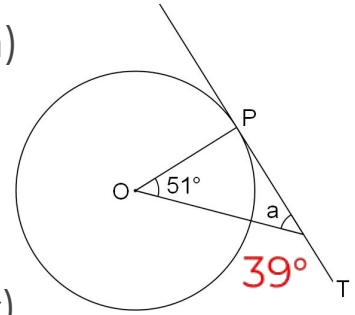
x = 90° y = 47°

Work out the value of angle x and y.
Give a reason for your answers.

The angle between the tangent and radius is 90°.

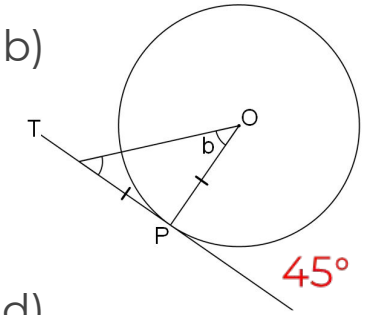
2. Work out the size of each angle marked with a letter.

a)



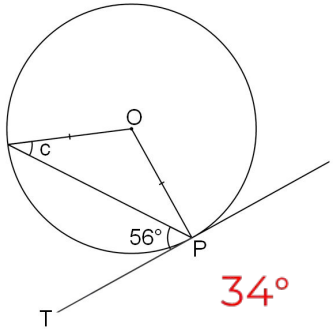
39°

b)



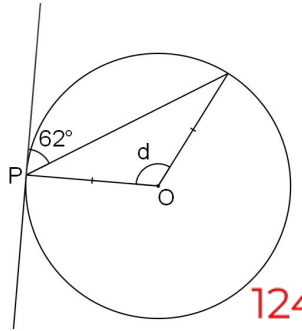
45°

c)



34°

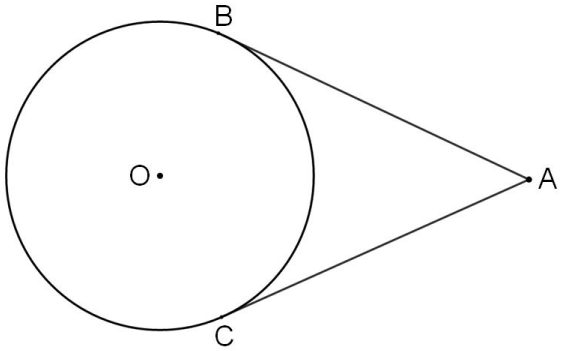
d)



124°

A tangent and radius are perpendicular at the point of contact

3. AB and AC are tangents to the circle.

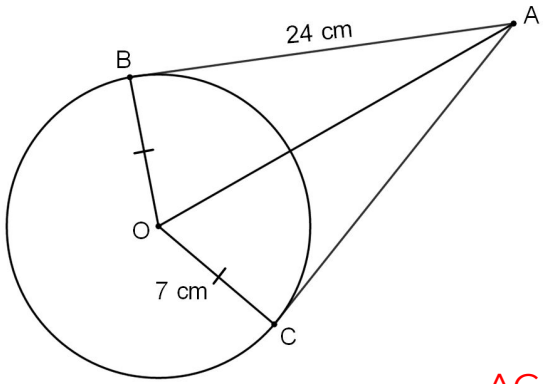


The length of AB = 12 cm.

Work out the length of AC.

AC = 12 cm

4. AB and AC are tangents to the circle. The circle has a radius of 7 cm.



AC = 24 cm

a) Work out the length of AC.

b) Work out the length of AO.

AO = 25 cm