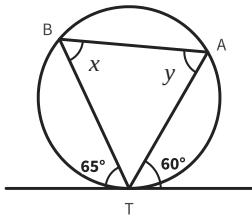


Circle Theorems: Alternate Segment

ANSWERS

1 alternate segment theorem

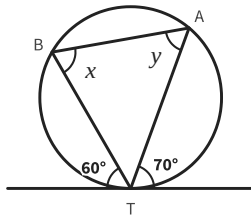
Find x and y .



$x = 60^\circ$ alternate segment

$y = 65^\circ$ alternate segment

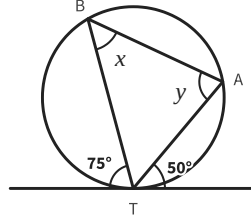
2 Find x and y .



$x = 70^\circ$ alternate segment

$y = 60^\circ$ alternate segment

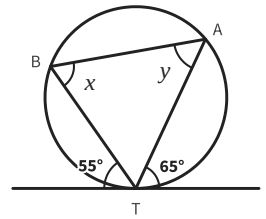
3 Find x and y .



$x = 50^\circ$ alternate segment

$y = 75^\circ$ alternate segment

4 Find x and y .

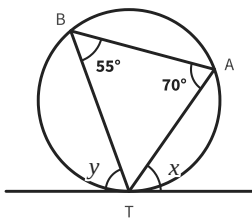


$x = 65^\circ$ alternate segment

$y = 55^\circ$ alternate segment

5 Notice the change!

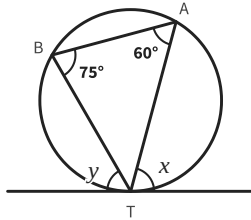
Find x and y .



$x = 55^\circ$ alternate segment: angle B

$y = 70^\circ$ alternate segment: angle A

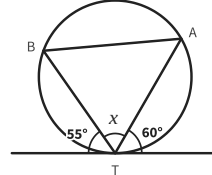
6 Find x and y .



$x = 75^\circ$ alternate segment: angle B

$y = 60^\circ$ alternate segment: angle A

7 Find x .

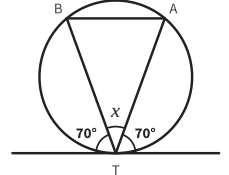


$x = 180 - 60 - 55$

angles on a straight line

$x = 65^\circ$

8 Find x .



$x = 180 - 70 - 70$

angles on a straight line

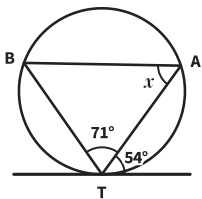
$x = 40^\circ$

Circle Theorems: Alternate Segment further practice

ANSWERS

9

The line is a tangent to the circle at T. Find angle TAB, marked x .



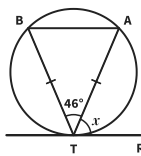
angle TBA = 54° (alternate segment)

$x = 180 - 54 - 71$

Answer $x = 55^\circ$

10

A round mirror touches a straight shelf RT at T. Two straight strips of trim, TA and TB, are the same length and meet at 46° . Find angle ATR, marked x .



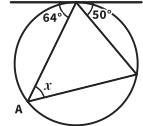
angle TBA = $(180 - 46) \div 2 = 67^\circ$

$x = \text{angle TBA}$ (alternate segment)

Answer $x = 67^\circ$

11

A round window touches a straight beam at T. Strips of lead TA, TB and AB make a triangle in the glass. Find angle TAB, marked x .

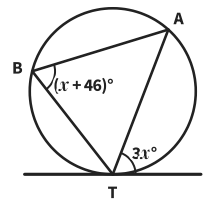


angle TAB is in the alternate segment to TB so it equals the angle between TB and the beam

Answer $x = 50^\circ$

12

The line is a tangent to the circle at T. Find the value of x .



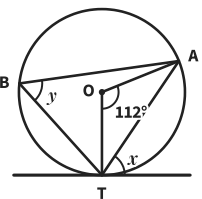
$3x = x + 46$ (alternate segment)

$2x = 46$

Answer $x = 23$

13

O is the centre and the line is a tangent at T. Find x and y .



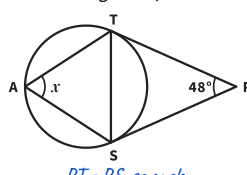
$y = 112 \div 2$ (angle at the centre)

$x = y$ (alternate segment)

Answer $x = 56^\circ, y = 56^\circ$

14

Two straight paths from a gate P just touch a round lawn at T and S. A bench is at A on the far edge of the lawn. Find angle TAS, marked x .



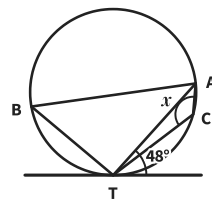
PT = PS, so angle PTS = $(180 - 48) \div 2 = 66^\circ$

$x = \text{angle PTS}$ (alternate segment)

Answer $x = 66^\circ$

15

The line is a tangent to the circle at T. Find angle TCA, marked x .



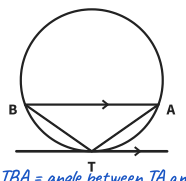
angle TBA = 48° (alternate segment)

T CAB is cyclic: $x = 180 - 48$

Answer $x = 132^\circ$

16

The chord AB is parallel to the tangent at T. Explain why triangle TAB is isosceles.



angle TBA = angle between TA and the tangent (alt. segment)

angle TAB = that angle too (alternate angles), so TBA = TAB

TA = TB

So