2D Pythagoras & SOHCAHTOA Difficulty: Hard

Question Paper 1

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Trigonometry
Sub-Topic	2D Pythagoras & SOHCAHTOA
Paper	Paper 2
Difficulty	Hard
Booklet	Question Paper 1

Time allowed: **32 minutes**

Score: **/25**

Percentage: **/100**

Grade Boundaries:

CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

CIE IGCSE Maths (0980)

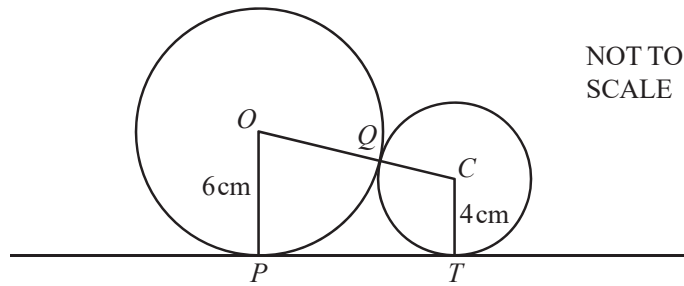| 9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%
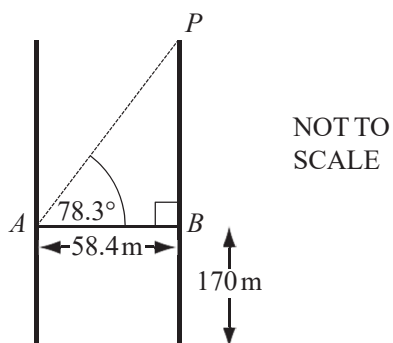
The line AB represents the glass walkway between the Petronas Towers in Kuala Lumpur.
The walkway is 58.4 metres long and is 170 metres above the ground.
The angle of elevation of the point P from A is 78.3°.

Calculate the height of P above the ground. [3]

NOT TO
SCALE

Two circles, centres *O* and *C*, of radius 6 cm and 4 cm respectively, touch at *Q*.
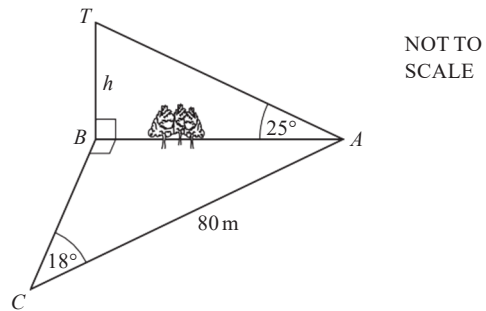*PT* is a tangent to both circles.

(a) Write down the distance *OC*.   [1]

(b) Calculate the distance *PT*.
                                                                      [3]
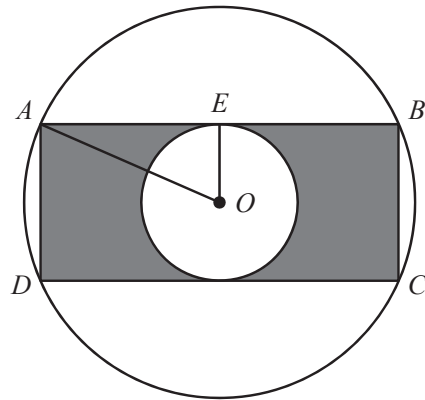
T

h

NOT TO
SCALE

B

25°

A

18°

C

80 m

Mahmoud is working out the height, h metres, of a tower BT which stands on level ground.
He measures the angle TAB as 25°.
He cannot measure the distance AB and so he walks 80 m from A to C, where angle $ACB = 18°$ and
angle $ABC = 90°$.

Calculate

(a) the distance AB, [2]

(b) the height of the tower, BT.

[2]

NOT TO
SCALE

A,B,C and *D* lie on a circle, centre *O*, radius 8 cm.
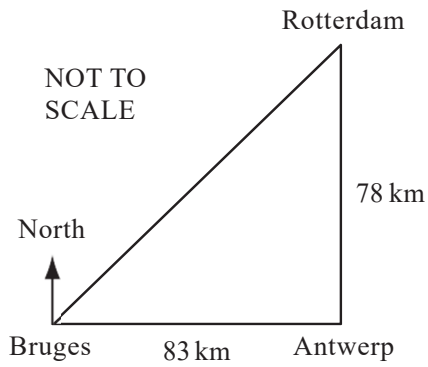*AB* and *CD* are tangents to a circle, centre *O*, radius 4 cm.
ABCD is a rectangle.

(a) Calculate the distance *AE*.

[2]

(b) Calculate the shaded area.

[3]

Rotterdam

NOT TO
SCALE

Antwerp is 78 km due South of Rotterdam and 83 km due East of Bruges, as shown in the diagram.

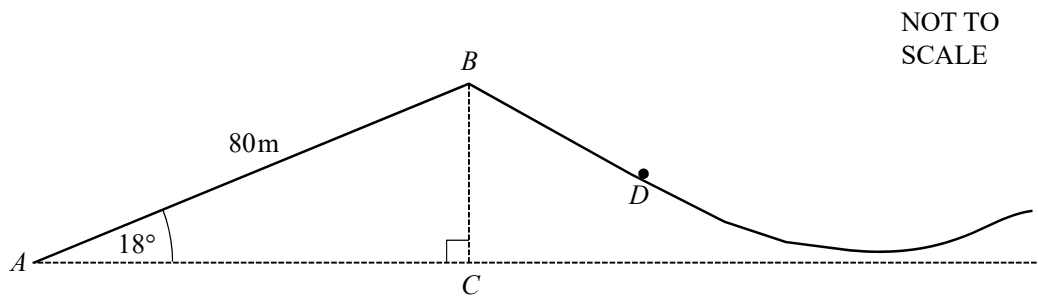78 km

North

Bruges   83 km   Antwerp

Calculate

(a) the distance between Bruges and Rotterdam,

[2]

(b) the bearing of Rotterdam from Bruges, correct to the nearest degree.

[3]

NOT TO
SCALE

The diagram shows the start of a roller-coaster ride at a fairground.
A car rises from A to B along a straight track.

(a) $AB = 80$ metres and angle $BAC = 18°$.
   Calculate the vertical height of B above A.   [2]

(b) The car runs down the slope from B to D, a distance of s metres.
   Use the formula $s = t(p + qt)$ to find the value of s, given that $p = 4$, $t = 3$ and $q = 3.8$.

[2]