

# Right-Angled Triangles – Pythagoras & Trigonometry

## Question Paper

Course	Edexcel IGCSE Maths
Section	4. Geometry & Trigonometry
Topic	Right-Angled Triangles – Pythagoras & Trigonometry
Difficulty	Medium

**Time allowed:** 80  
**Score:** /64  
**Percentage:** /100

Question 1

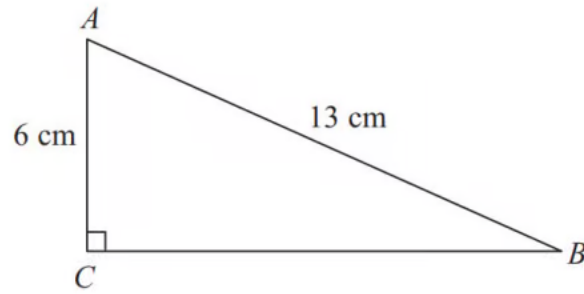


Diagram **NOT**  
accurately drawn

$ABC$  is a right-angled triangle.

$AC = 6$  cm

$AB = 13$  cm

Work out the length of  $BC$ .

Give your answer correct to 3 significant figures.

[3 marks]

### Question 2

Here is a rectangle.

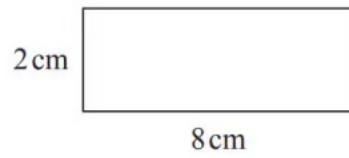


Diagram **NOT**  
accurately drawn

The 8-sided shape below is made from 4 of these rectangles and 4 congruent right-angled triangles.

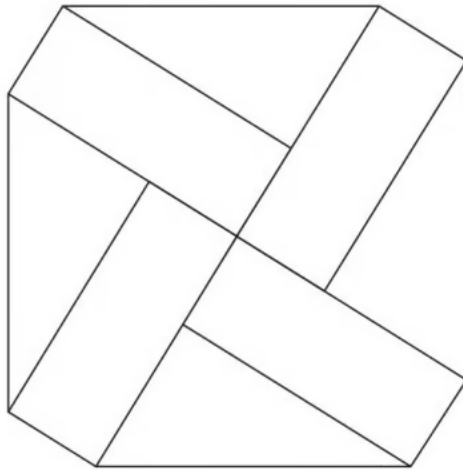


Diagram **NOT**  
accurately drawn

Work out the perimeter of the 8-sided shape.  
You must show all your working.

[5 marks]

### Question 3

Here is part of a field.

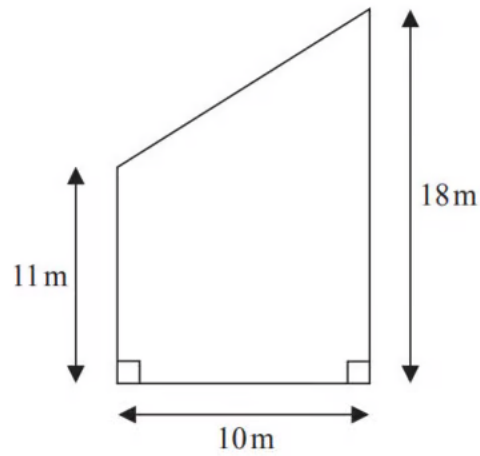


Diagram **NOT**  
accurately drawn

This part of the field is in the shape of a trapezium.

A farmer wants to put a fence all the way around the edge of this part of the field.

The farmer has 50m of fence.

Does he have enough fence?

You must show all your working.

[5 marks]

#### Question 4

The diagram shows a rectangular framework.

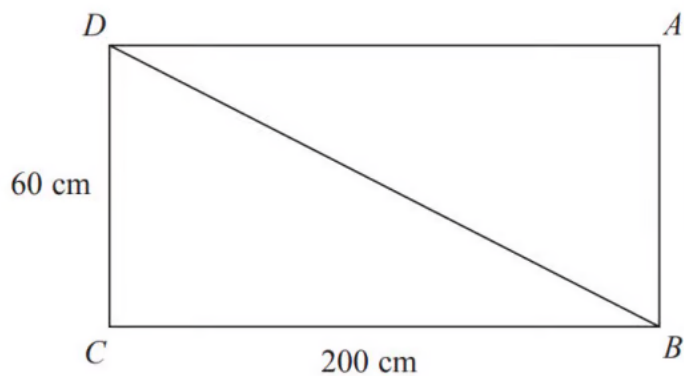


Diagram **NOT**  
accurately drawn

The framework is made from 5 metal rods.  
The metal rods have a weight of  $0.9\text{ kg}$  per metre.

Work out the total weight of the framework.  
Give your answer, in  $\text{kg}$ , correct to 3 significant figures.

[4 marks]

#### Question 5

Triangle  $ABC$  has perimeter  $20\text{ cm}$ .

$$AB = 7\text{ cm.}$$

$$BC = 4\text{ cm.}$$

By calculation, deduce whether triangle  $ABC$  is a right-angled triangle.

[4 marks]

### Question 6

The diagram shows a ladder leaning against a vertical wall.

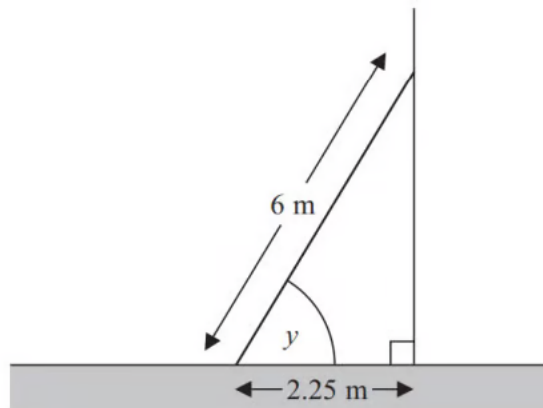


Diagram **NOT**  
accurately drawn

The ladder stands on horizontal ground.

The length of the ladder is 6 m.

The bottom of the ladder is 2.25 m from the bottom of the wall.

A ladder is safe to use when the angle marked  $y$  is about  $75^\circ$ .

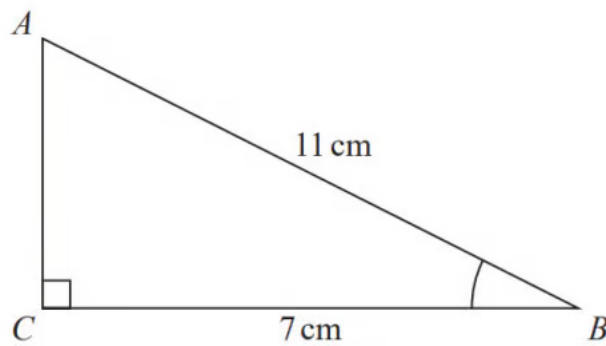
Is the ladder safe to use?

You must show all your working.

[3 marks]

**Question 7a**

$ABC$  is a right-angled triangle.



Work out the size of angle  $ABC$ .

Give your answer correct to 1 decimal place.

[2 marks]

**Question 7b**

The length of the side  $AB$  is reduced by  $1\text{ cm}$ .

The length of the side  $BC$  is still  $7\text{ cm}$ .

Angle  $ACB$  is still  $90^\circ$

Will the value of  $\cos ABC$  increase or decrease?

You must give a reason for your answer.

[1 mark]

**Question 8a**

The diagram shows the positions of three turbines  $A$ ,  $B$  and  $C$ .

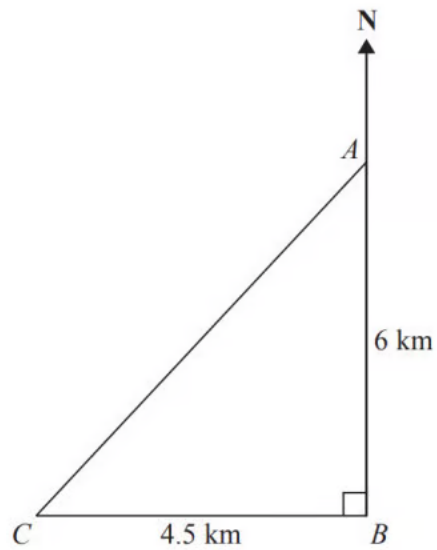


Diagram **NOT**  
accurately drawn

$A$  is 6 km due north of turbine  $B$ .  
 $C$  is 4.5 km due west of turbine  $B$ .

Calculate the distance  $AC$ .

[3 marks]

**Question 8b**

Calculate the bearing of  $C$  from  $A$ .  
Give your answer correct to the nearest degree.

[4 marks]



**Question 9**

$ABC$  is an isosceles triangle.

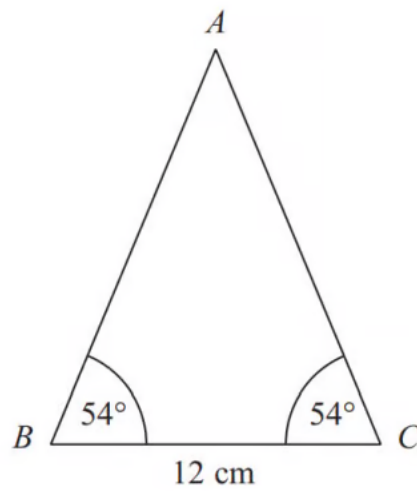


Diagram **NOT**  
accurately drawn

Work out the area of the triangle.  
Give your answer correct to 3 significant figures.

**[4 marks]**

**Question 10**

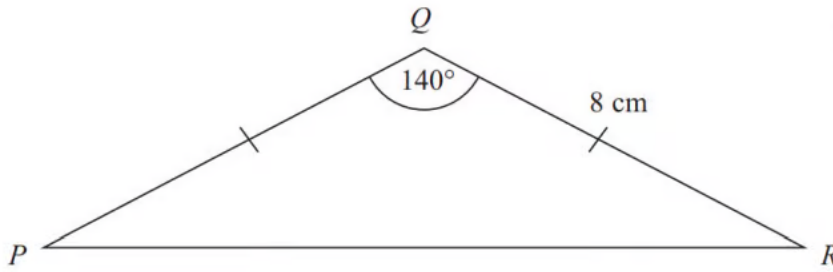


Diagram **NOT** accurately drawn

Calculate the length of  $PR$ .  
Give your answer correct to 3 significant figures.

[3 marks]

**Question 11**

The diagram shows isosceles triangle  $ABC$

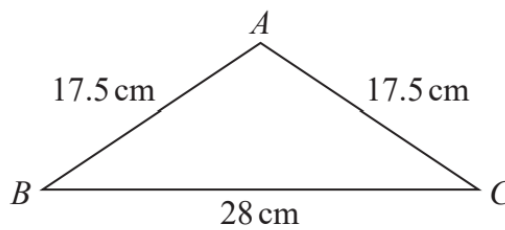


Diagram **NOT** accurately drawn

$AB = AC = 17.5 \text{ cm}$      $BC = 28 \text{ cm}$

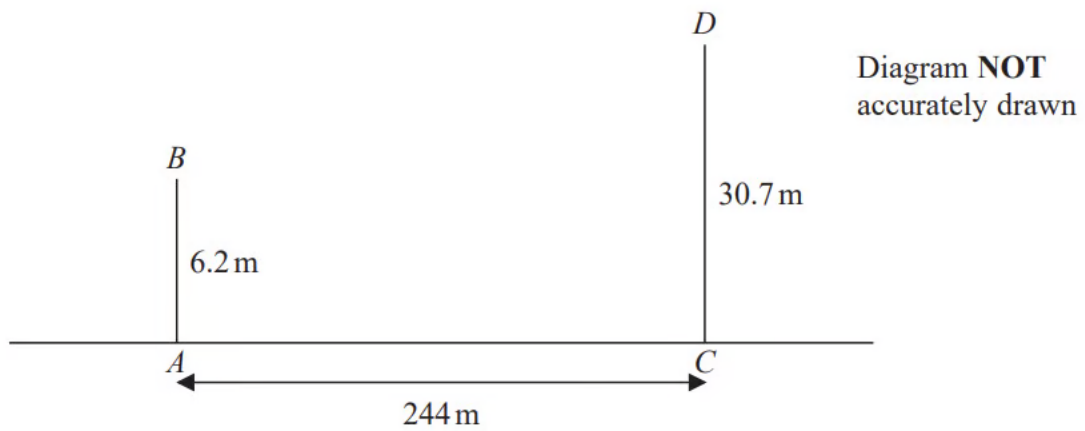
Calculate the area of triangle  $ABC$

.....  $\text{cm}^2$

[4 marks]

**Question 12**

The diagram shows two vertical phone masts,  $AB$  and  $CD$ , on horizontal ground.



$$AB = 6.2\text{ m} \quad AC = 244\text{ m} \quad CD = 30.7\text{ m}$$

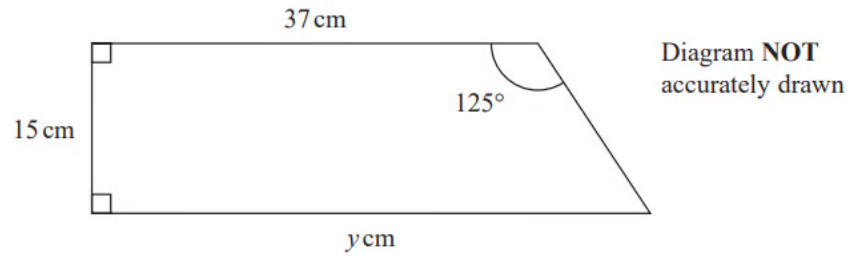
Work out the size of the angle of depression of  $B$  from  $D$

Give your answer correct to one decimal place.

[3 marks]

### Question 13

The diagram shows a trapezium.



Work out the value of  $y$ .

Give your answer correct to 1 decimal place.

$y =$

[4 marks]

**Question 14**

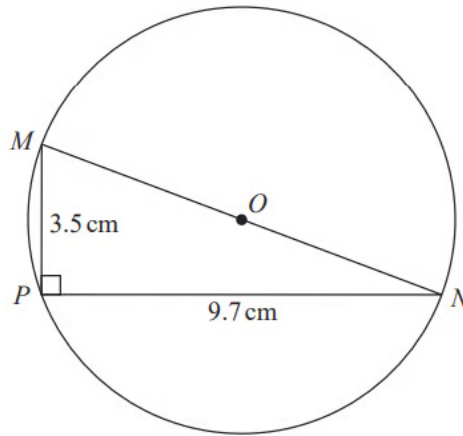


Diagram **NOT**  
accurately drawn

$M$ ,  $N$  and  $P$  are points on a circle, centre  $O$ .  
 $MON$  is a diameter of the circle.

$MP = 3.5 \text{ cm}$

$PN = 9.7 \text{ cm}$

Angle  $MPN = 90^\circ$

Work out the circumference of the circle.  
Give your answer correct to 3 significant figures.

..... cm

**[1 mark]**

**Question 15**

From point  $A$ , Stanley walks 200m due east to point  $B$ .  
From  $B$ , he then walks 160 m due south to point  $C$ .

Work out the length of  $AC$ .  
Give your answer correct to 3 significant figures.

.....metres

**[3 marks]**

**Question 16**

$ABCD$  is a trapezium.

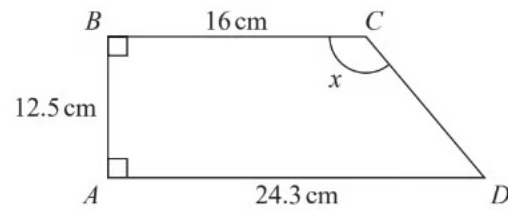


Diagram **NOT**  
accurately drawn

Work out the size of angle  $x$ .

Give your answer correct to 1 decimal place.

[4 marks]

**Question 17**

The diagram shows an isosceles triangle.

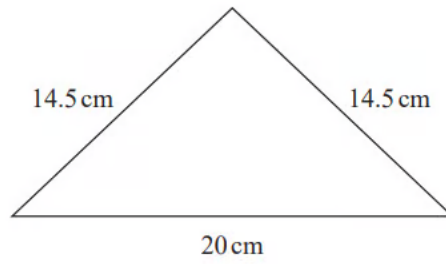


Diagram **NOT** accurately drawn

Work out the area of the triangle.

.....cm<sup>2</sup>

**[4 marks]**