

Right-Angled Triangles – Pythagoras & Trigonometry

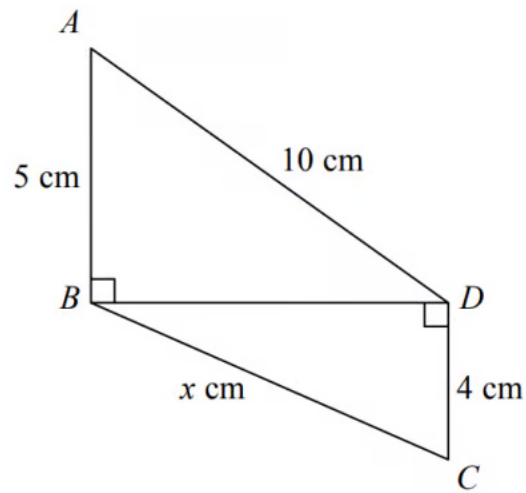
Question Paper

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

Time allowed: 80
Score: /63
Percentage: /100

Question 1

Triangles ABD and BCD are right-angled triangles.



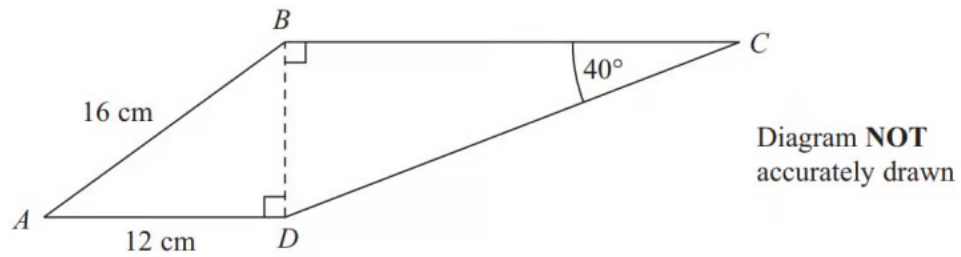
Work out the value of x .

Give your answer correct to 2 decimal places.

[4 marks]

Question 2

The diagram shows a quadrilateral $ABCD$.



$$AB = 16 \text{ cm.}$$

$$AD = 12 \text{ cm.}$$

$$\text{Angle } BCD = 40^\circ.$$

$$\text{Angle } ADB = \text{angle } CBD = 90^\circ.$$

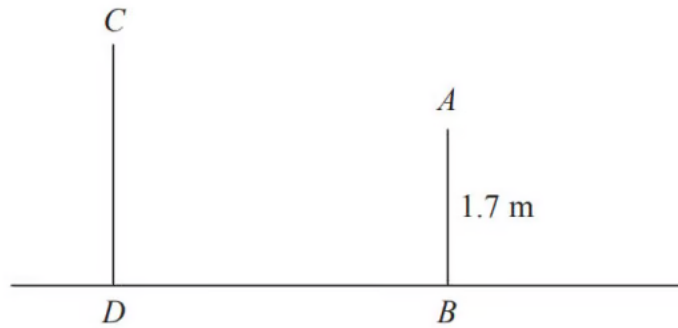
Calculate the length of CD .

Give your answer correct to 3 significant figures.

[5 marks]

Question 3

The diagram shows two vertical posts, AB and CD , on horizontal ground.



$$AB = 1.7 \text{ m}$$

$$CD : AB = 1.5 : 1$$

The angle of elevation of C from A is 52° .

Calculate the length of BD .

Give your answer correct to 3 significant figures.

[4 marks]

Question 4

$ABCD$ is a trapezium.

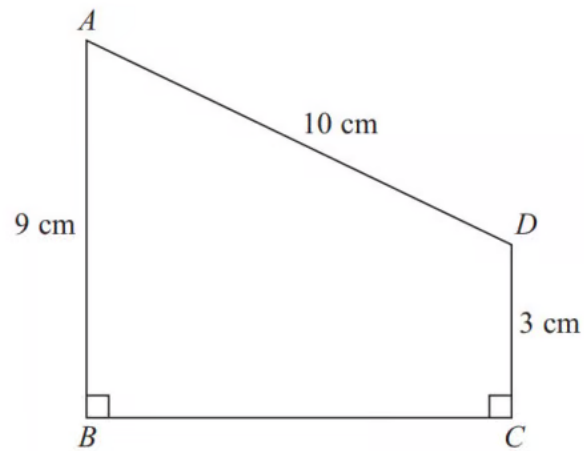


Diagram **NOT** accurately drawn

$$AD = 10 \text{ cm}$$

$$AB = 9 \text{ cm}$$

$$DC = 3 \text{ cm}$$

$$\text{Angle } ABC = \text{angle } BCD = 90^\circ$$

Calculate the length of AC .

Give your answer correct to 3 significant figures.

[5 marks]

Question 5

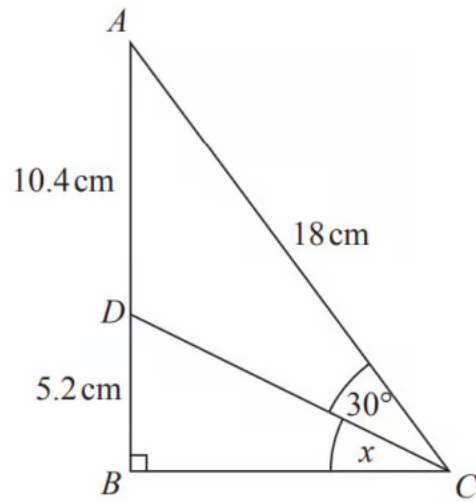


Diagram **NOT**
accurately drawn

ABC is a right-angled triangle.

D is a point on AB .

Angle $ACD = 30^\circ$

$AD = 10.4$ cm

$DB = 5.2$ cm

$AC = 18$ cm

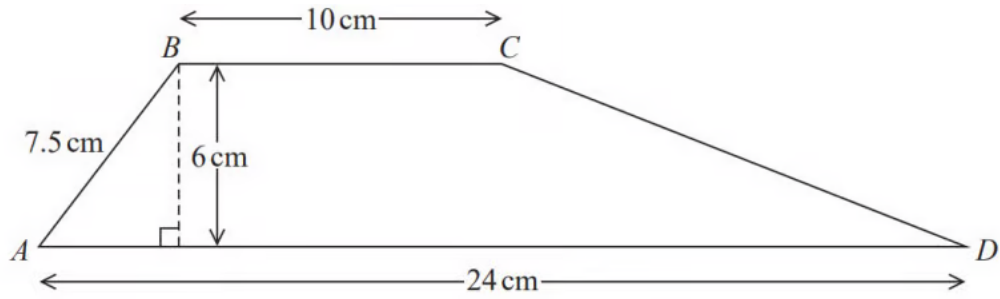
Work out the size of the angle marked x .

Give your answer correct to 1 decimal place.

[4 marks]

Question 6

$ABCD$ is a trapezium.



Work out the size of angle CDA .

Give your answer correct to 1 decimal place.

[5 marks]

Question 7

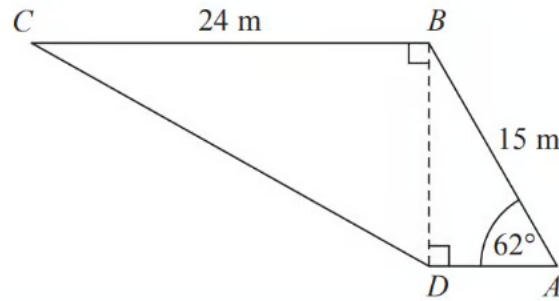


Diagram **NOT**
accurately drawn

$AB = 15 \text{ m}$

$BC = 24 \text{ m}$

Angle $BAD = 62^\circ$

Work out the size of angle BCD .

Give your answer correct to 1 decimal place.

[5 marks]

Question 8

The diagram shows a triangle DEF inside a rectangle $ABCD$.

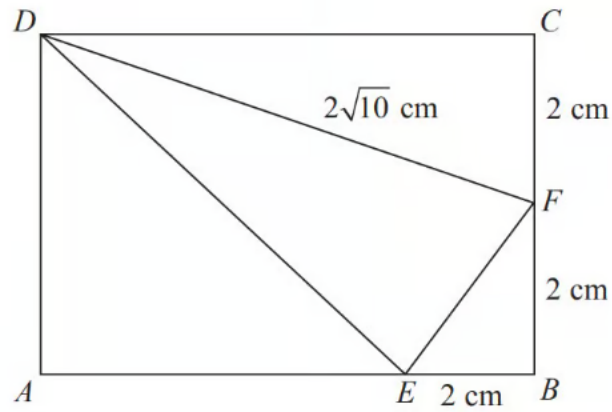


Diagram **NOT** accurately drawn

Show that the area of triangle DEF is 8 cm^2
You must show all your working.

[4 marks]

Question 9

Here is a parallelogram.

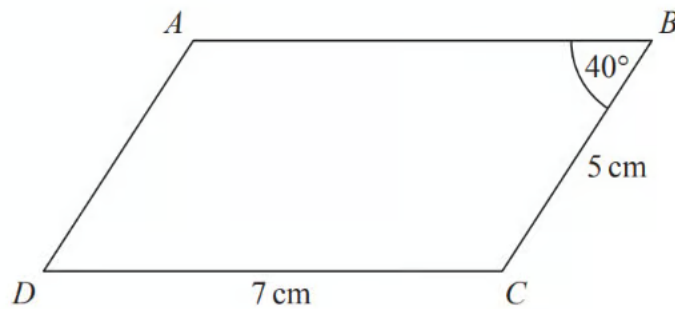


Diagram **NOT**
accurately drawn

$$DC = 7\text{ cm}$$

$$CB = 5\text{ cm}$$

Angle ABC is 40°

Work out the area of the parallelogram.

Give your answer correct to 1 decimal place.

[3 marks]

Question 10

The diagram shows a right-angled triangle.

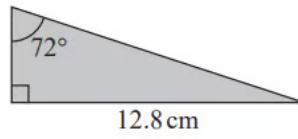


Diagram **NOT** accurately drawn

Five of these triangles are put together to make a shape.

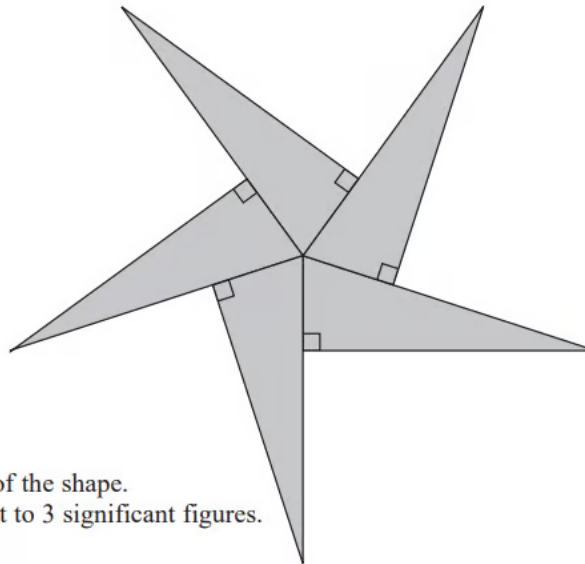


Diagram **NOT** accurately drawn

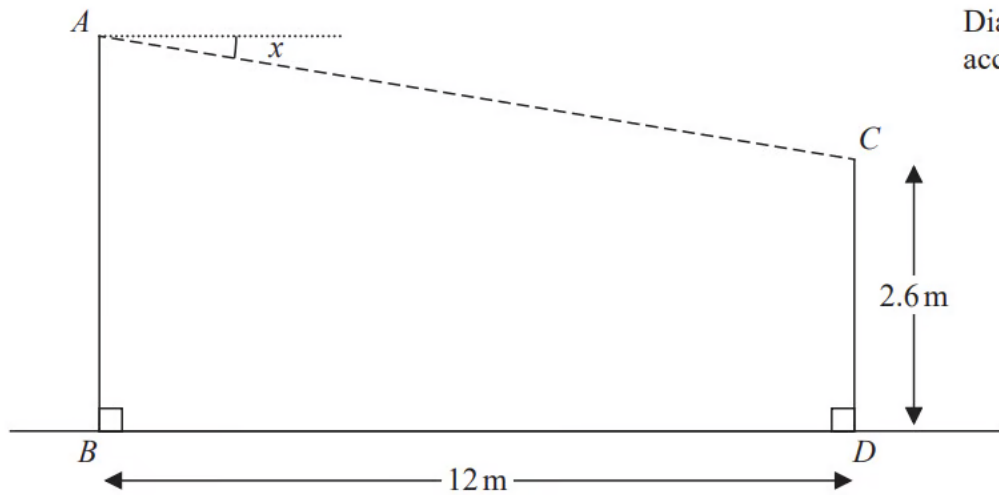
Calculate the perimeter of the shape.
Give your answer correct to 3 significant figures.

..... cm

[5 marks]

Question 11

A zip wire is shown as the dashed line AC in the diagram.



The zip wire is supported by two vertical posts AB and CD standing on horizontal ground.

$$CD = 2.6\text{ m} \quad BD = 12\text{ m}$$

The zip wire makes an angle x with the horizontal, as shown in the diagram.

The design of the zip wire requires the angle x to be at least 5°

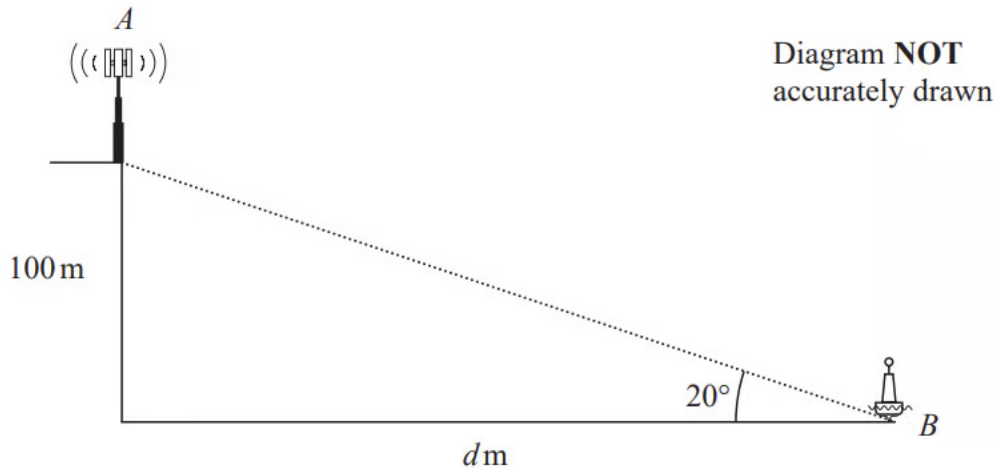
Work out the least possible height of the post AB

Give your answer correct to 3 significant figures.

[3 marks]

Question 12a

The diagram shows a vertical cliff with a vertical radio mast on top of the cliff and a buoy in the sea.



The height of the cliff is 100 metres.
 The buoy is at the point *B* that is *d* metres from the base of the cliff.
 The angle of elevation from *B* to the top of the cliff is 20°

Calculate the value of *d*.
 Give your answer correct to 3 significant figures.

d =

[3 marks]

Question 12b

The point *A* at the top of the radio mast is vertically above the top of the cliff.
 The angle of elevation from *B* to *A* is 25°

Calculate the height of the radio mast.
 Give your answer correct to 3 significant figures.

..... m

[3 marks]

Question 13

The diagram shows a shaded shape $ABCD$ made from a semicircle ABC and a right-angled triangle ACD .

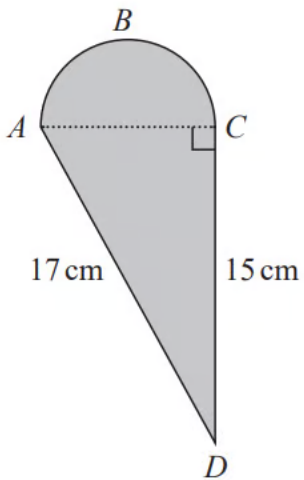


Diagram **NOT**
accurately drawn

AC is the diameter of the semicircle ABC .

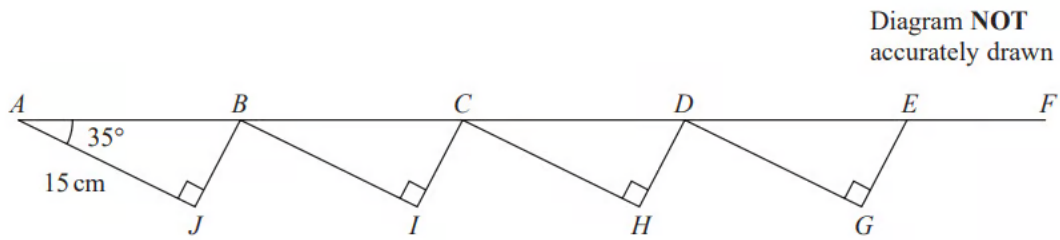
Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

.....cm

[5 marks]

Question 14

The diagram shows four congruent right-angled triangles ABJ , BCI , CDH and DEG .
The diagram also shows the straight line $ABCDEF$.



$AJ = 15\text{cm}$

Angle $BAJ = 35^\circ$

$AF = 80\text{cm}$

Work out the length of EF .

Give your answer correct to 3 significant figures.

..... cm

[5 marks]