

Sine, Cosine Rule & Area of Triangles

Question Paper

Course	Edexcel IGCSE Maths
Section	4. Geometry & Trigonometry
Topic	Sine, Cosine Rule & Area of Triangles
Difficulty	Medium

Time allowed: 80
Score: /65
Percentage: /100

Question 1a

ABC is a triangle.

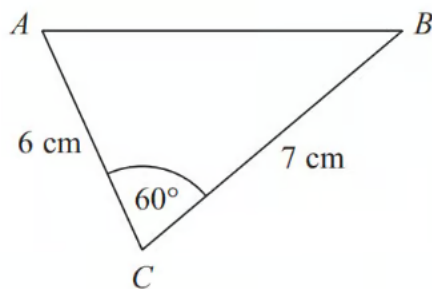


Diagram **NOT**
accurately drawn

Work out the area of triangle ABC .

Give your answer correct to 3 significant figures.

[2 marks]

Question 1b

Work out the length of the side AB .

Give your answer correct to 3 significant figures.

[3 marks]

Question 2

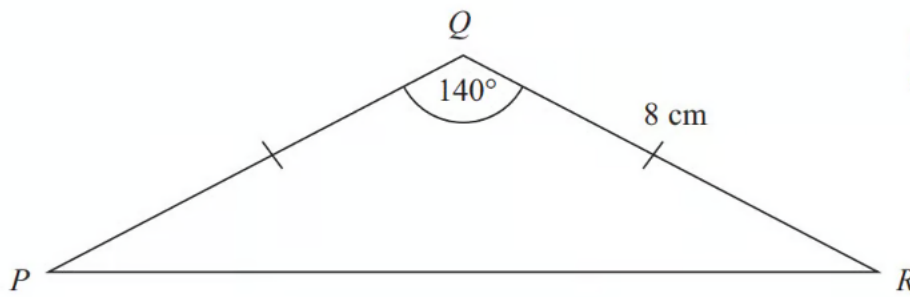


Diagram **NOT**
accurately drawn

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

[3 marks]

Question 3a

The diagram shows parallelogram $EFGH$.

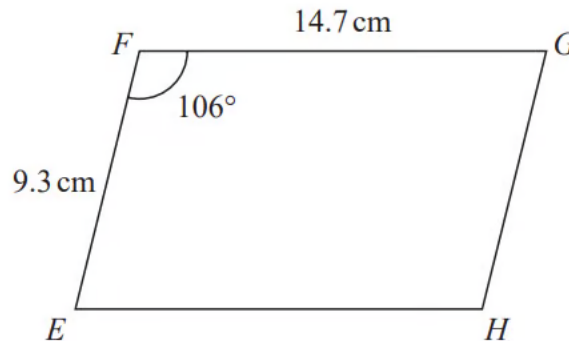


Diagram **NOT** accurately drawn

$$EF = 9.3 \text{ cm}$$

$$FG = 14.7 \text{ cm}$$

$$\text{Angle } EFG = 106^\circ$$

Work out the area of the parallelogram.

Give your answer correct to 3 significant figures.

.....cm²

[2 marks]

Question 3b

Work out the length of the diagonal EG of the parallelogram.

Give your answer correct to 3 significant figures.

.....cm

[3 marks]

Question 4

The diagram shows triangle PQR .

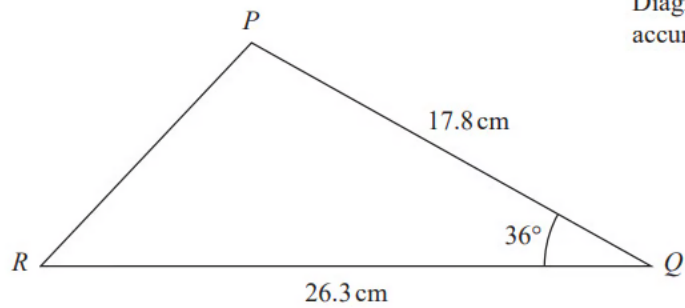


Diagram NOT accurately drawn

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

.....cm

[3 marks]

Question 5

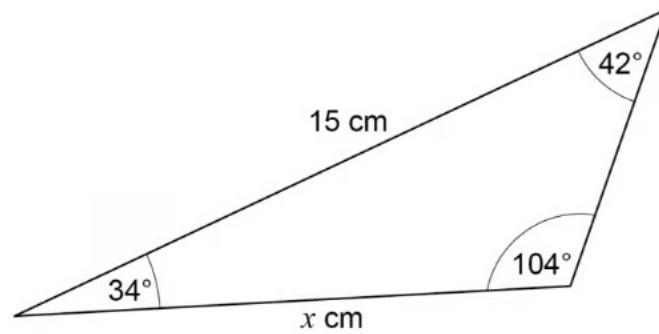
A triangle has sides of length 8 cm, 10 cm and 14 cm.

Work out the size of the largest angle of the triangle.
Give your answer correct to 1 decimal place.

[3 marks]

Question 6

Here is a triangle.



Not drawn accurately

Circle the correct equation.

$$\frac{\sin x}{42} = \frac{\sin 15^\circ}{104}$$

$$\frac{\sin x}{34} = \frac{\sin 15^\circ}{104}$$

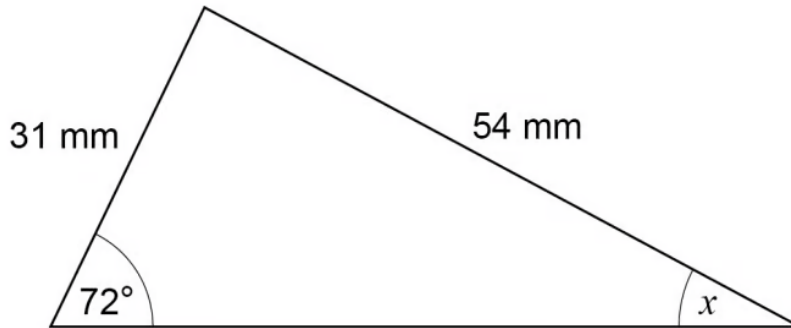
$$\frac{x}{\sin 42^\circ} = \frac{15}{\sin 104^\circ}$$

$$\frac{x}{\sin 42^\circ} = \frac{15}{\sin 34^\circ}$$

[1 mark]

Question 7

Here is a triangle.



Not drawn accurately

Leah tries to use the sine rule to work out the size of angle x . Here are the first two lines of her working.

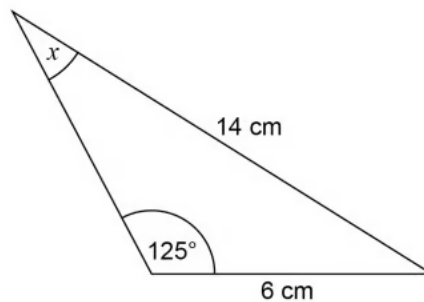
$$\frac{x}{\sin 31} = \frac{54}{\sin 72}$$
$$x = \frac{54 \sin 31}{\sin 72}$$

What error has she made in this working?

[1 mark]

Question 8

Work out the size of angle x .



Not drawn accurately

.....degrees

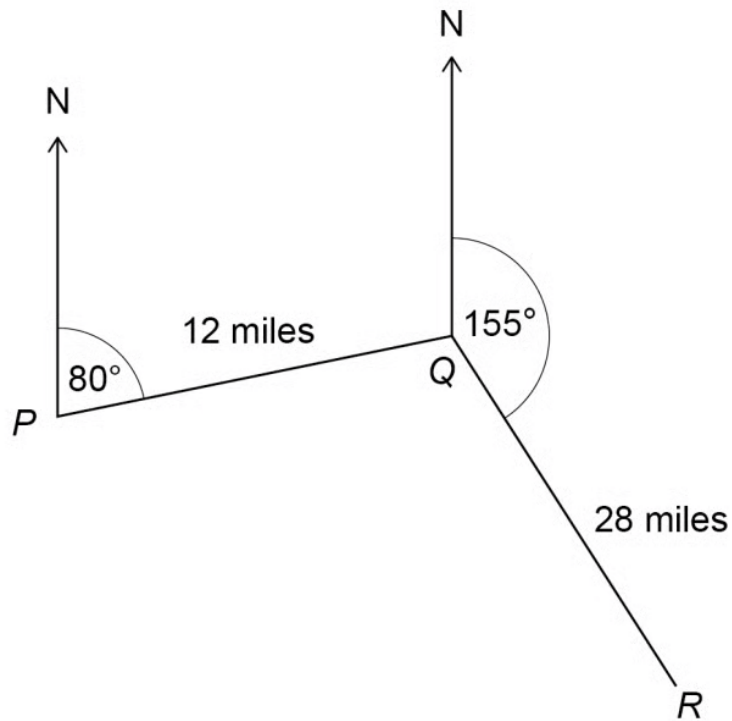
[3 marks]

Question 9

A ship sails from P to Q and then from Q to R .

Q is 12 miles from P , on a bearing of 080°

R is 28 miles from Q , on a bearing of 155°

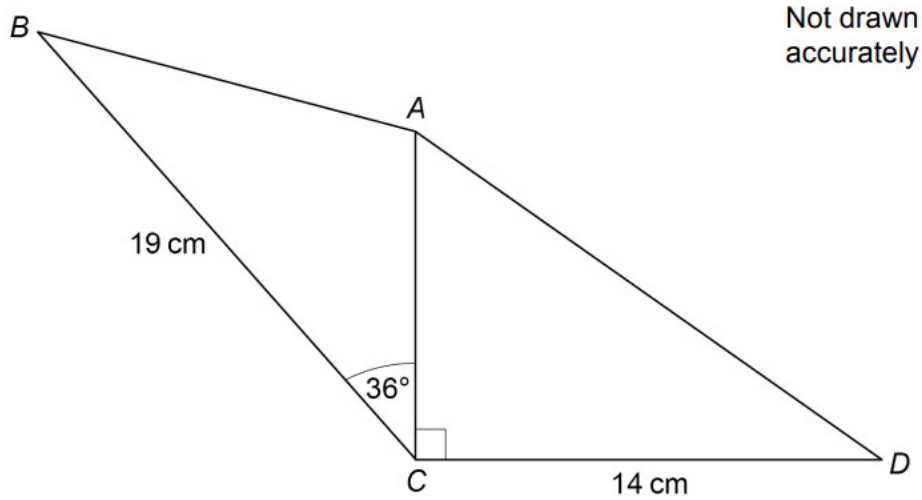


Work out the direct distance from P to R .

[4 marks]

Question 10

ABC and *ACD* are triangles.



The area of *ACD* is 80.5 cm^2

Work out the area of *ABC*.

Give your answer to 3 significant figures.

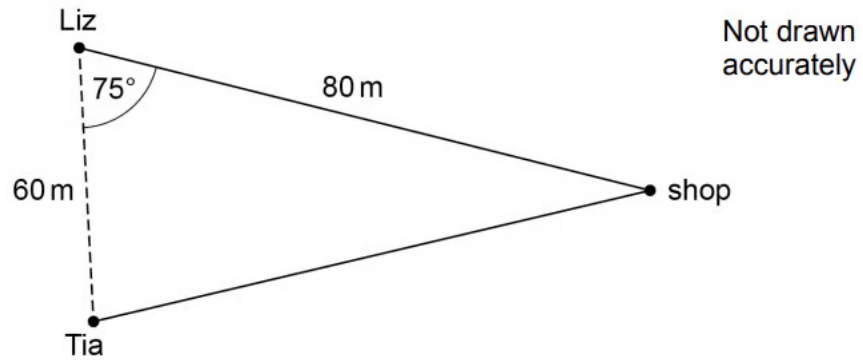
..... cm^2

[4 marks]

Question 11a

Liz and Tia are walking towards a shop along different straight paths.

The diagram shows their positions at 2 pm



Assume they walk at the same speed.

Who will arrive at the shop first?

You **must** show your working.

[3 marks]

Question 11b

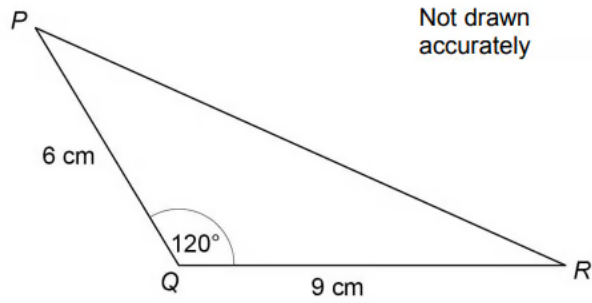
In fact, Liz walks at a faster speed than Tia.

How does this affect the answer to part (a)?

[1 mark]

Question 12

Here is a triangle.



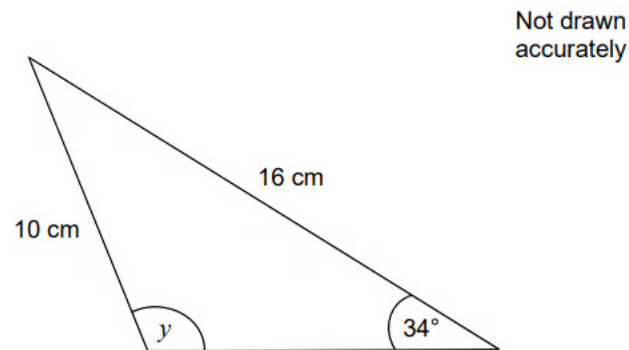
Work out the length PR .

.....cm

[3 marks]

Question 13

In the triangle, angle y is obtuse.



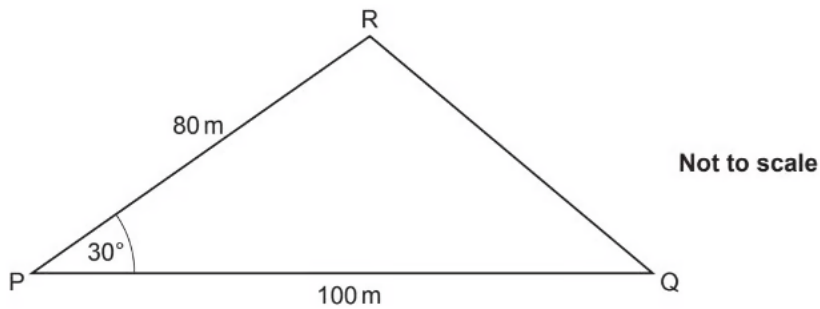
Work out the size of angle y .

.....degrees

[3 marks]

Question 14a

The diagram shows a triangular field PQR which is used to grow organic carrots.



$PQ = 100\text{ m}$, $PR = 80\text{ m}$ and angle $RPQ = 30^\circ$.

In recent years, an average of 2.5 kg of carrots has been harvested from each square metre of the field.

Use this information to work out the total mass of carrots that might have been harvested from the field in 2019.

.....kg

[4 marks]

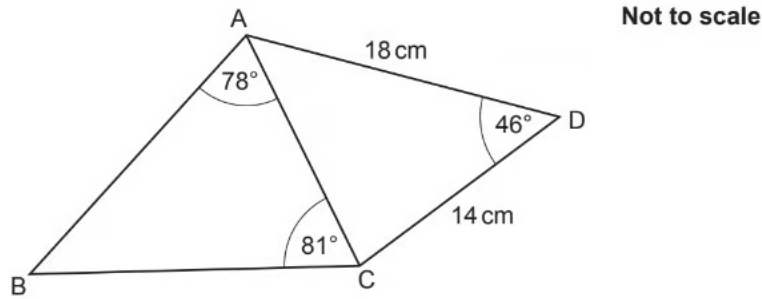
Question 14b

Why might the answer to part (a) be unreliable?

[1 mark]

Question 15a

ABC and ACD are triangles.



Show that $AC = 13.0$ cm, correct to 3 significant figures.

[4 marks]

Question 15b

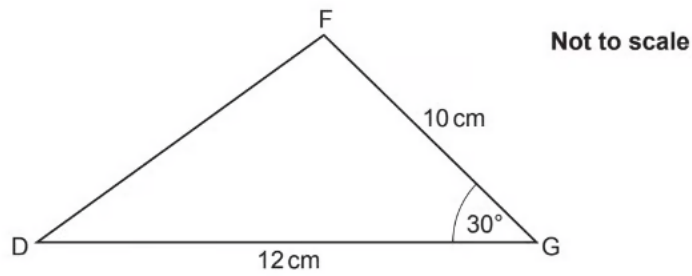
Calculate BC.

..... cm

[3 marks]

Question 16

Calculate length DF in this triangle.

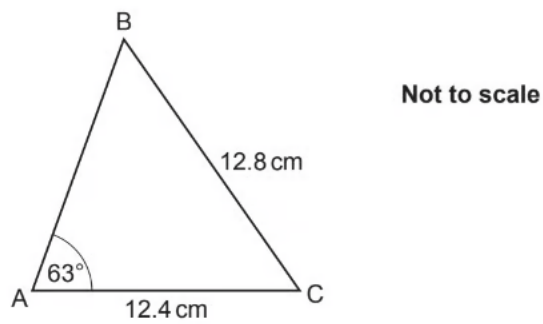


..... cm

[3 marks]

Question 17

Calculate angle ACB in this triangle.



[4 marks]

Question 18

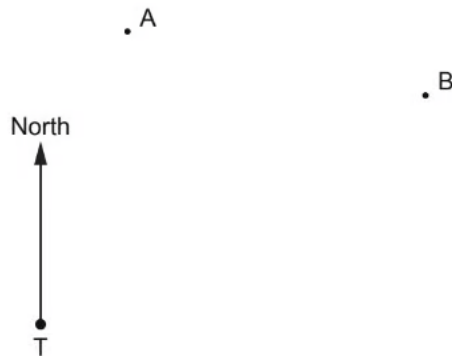
T is a radar tower.

A and B are two aircraft.

At 3pm

- aircraft A is 3250km from T on a bearing of 015°
- aircraft B is 4960km from T on a bearing of 057° .

Not to scale



Calculate the distance that was between aircraft A and aircraft B at 3pm.

..... km

[4 marks]

