**Trigonometry – 2022 Nov IGCSE 0580 Math**

1. Nov/2022/Paper_0580_11/No.19

   The bearing of $A$ from $B$ is $137°$.

   Find the bearing of $B$ from $A$.

   .................................................. [2]
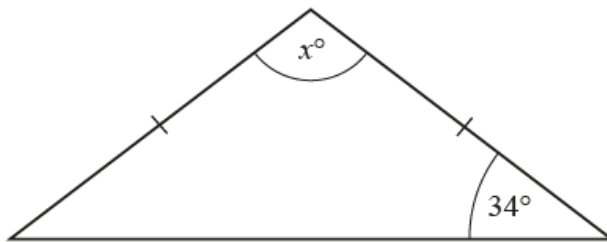
2. Nov/2022/Paper_0580_11/No.22
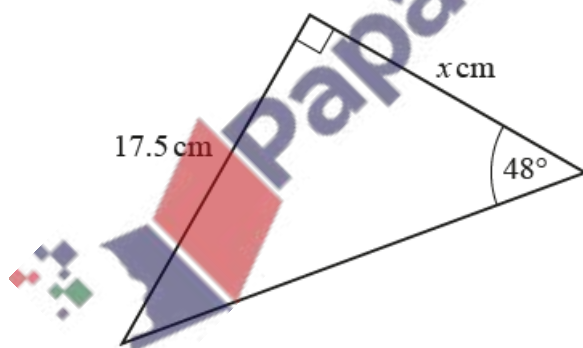


NOT TO SCALE

The diagram shows a right-angled triangle.

Show that the value of $x$ is 15.8, correct to 3 significant figures.
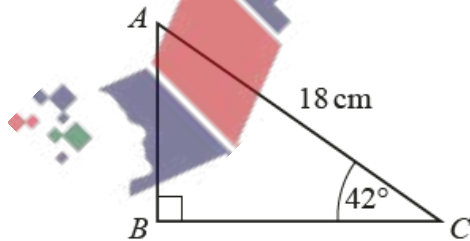
[3]

**3.** Nov/2022/Paper_0580_12/No.7



NOT TO
SCALE

The diagram shows an isosceles triangle.

Find the value of $x$.

$x =$ ................................................ [2]

**4.** Nov/2022/Paper_0580_12/No.21



NOT TO
SCALE

$ABC$ is a right-angled triangle.

Calculate $BC$.

$BC =$ ................................................ cm [2]
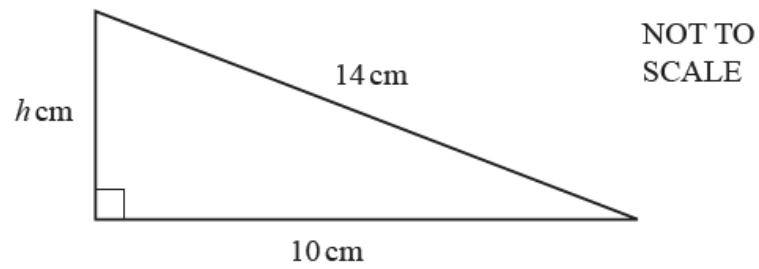
14 cm

NOT TO
SCALE

$h$ cm

10 cm

The diagram shows a right-angled triangle.

**(a)** Calculate the value of $h$.

$h =$ ...................................................... [3]

**(b)** Find the perimeter of this triangle.

...................................................... cm [1]
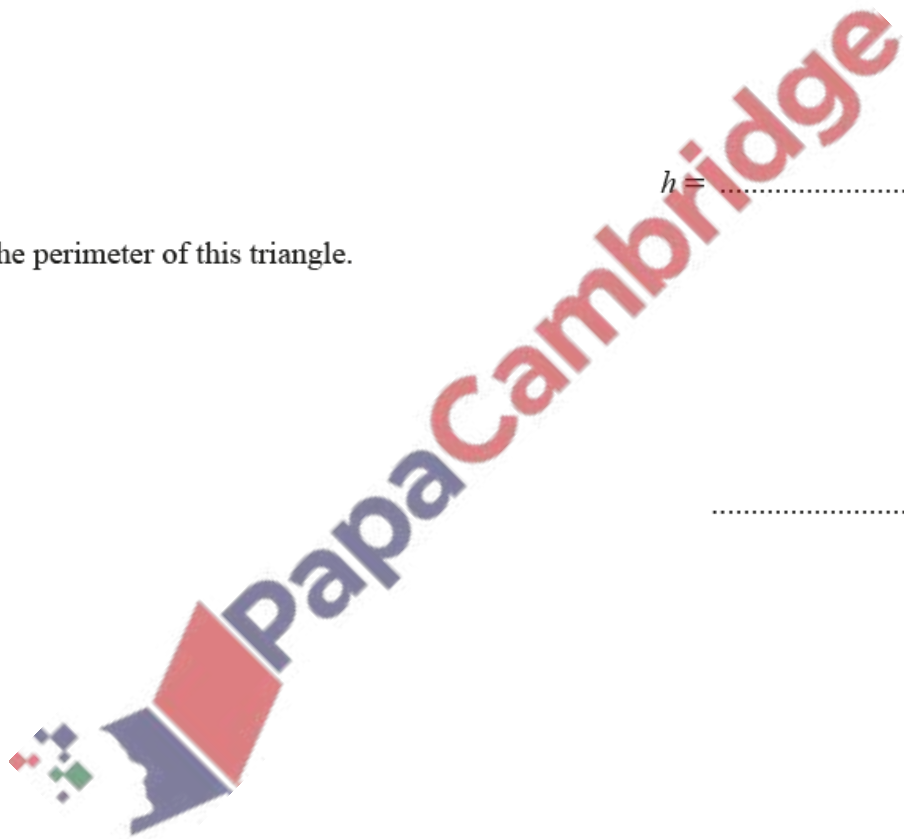
**6.** Nov/2022/Paper_0580_13/No.21
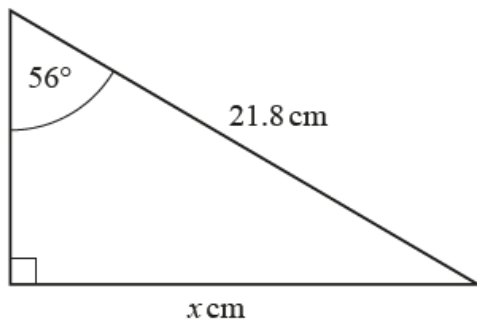


NOT TO SCALE

The diagram shows a right-angled triangle.

Calculate the value of $x$.

$$x = \text{................................................} \quad [2]$$

**7.** Nov/2022/Paper_0580_21/No.18
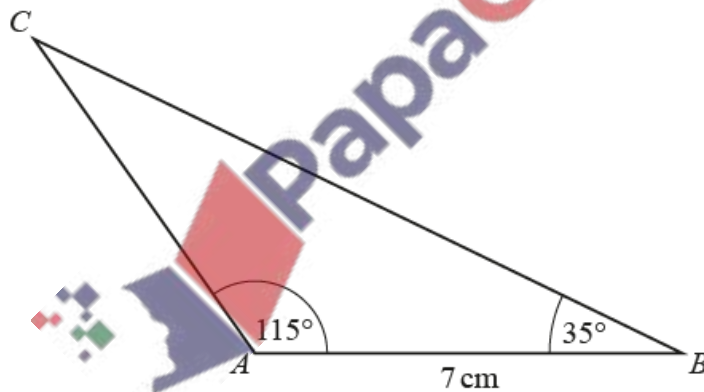


NOT TO SCALE

Calculate the length $BC$.

$$BC = \text{.........................................} \text{ cm} \quad [4]$$
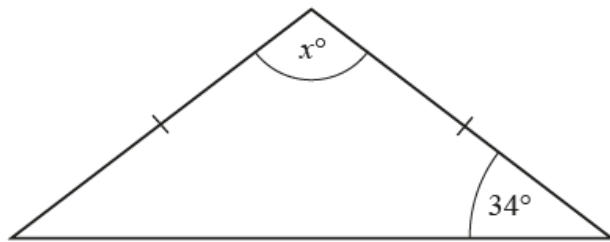
NOT TO SCALE

The diagram shows an isosceles triangle.
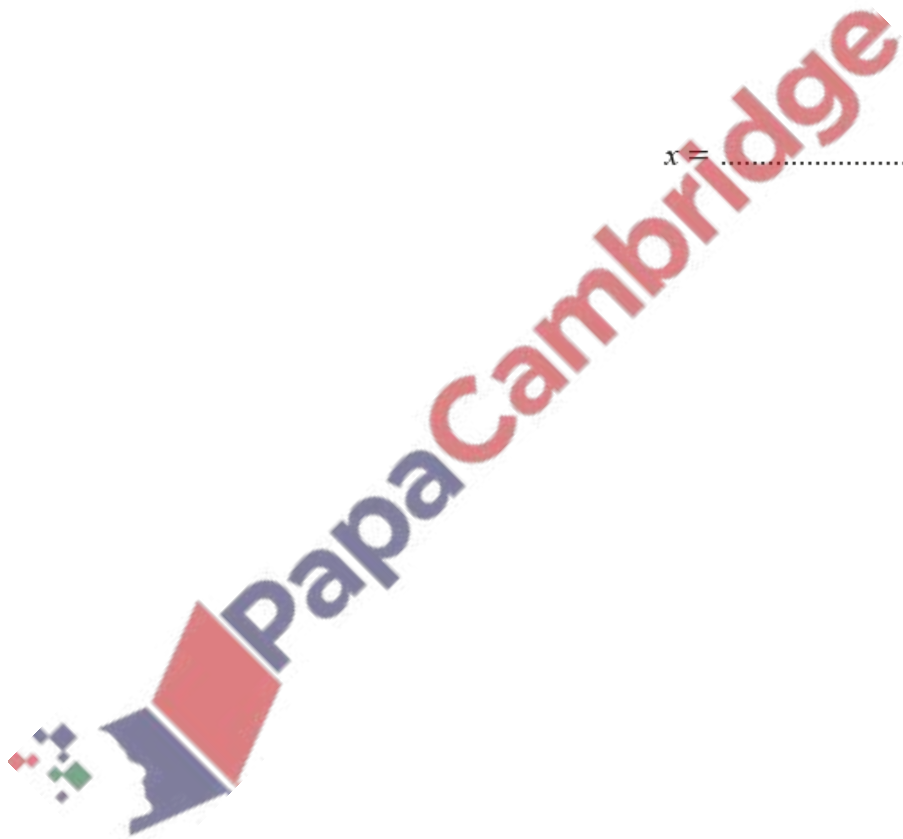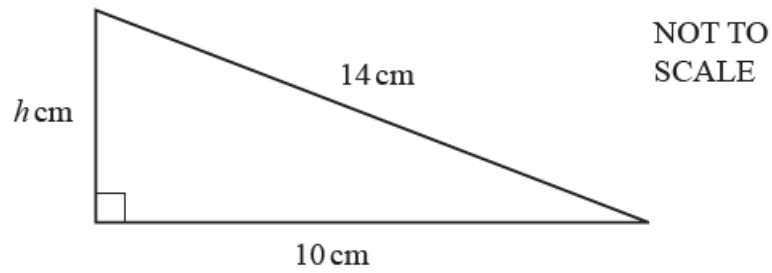
Find the value of $x$.

$x =$ .................................................... [2]

NOT TO SCALE

14 cm

$h$ cm

10 cm

The diagram shows a right-angled triangle.

(a) Calculate the value of $h$.

$h =$ ........................................................ [3]

(b) Find the perimeter of this triangle.

.......................................... cm [1]

North

B 112°

12.8 km

NOT TO SCALE

25°

A

17.6 km

•C
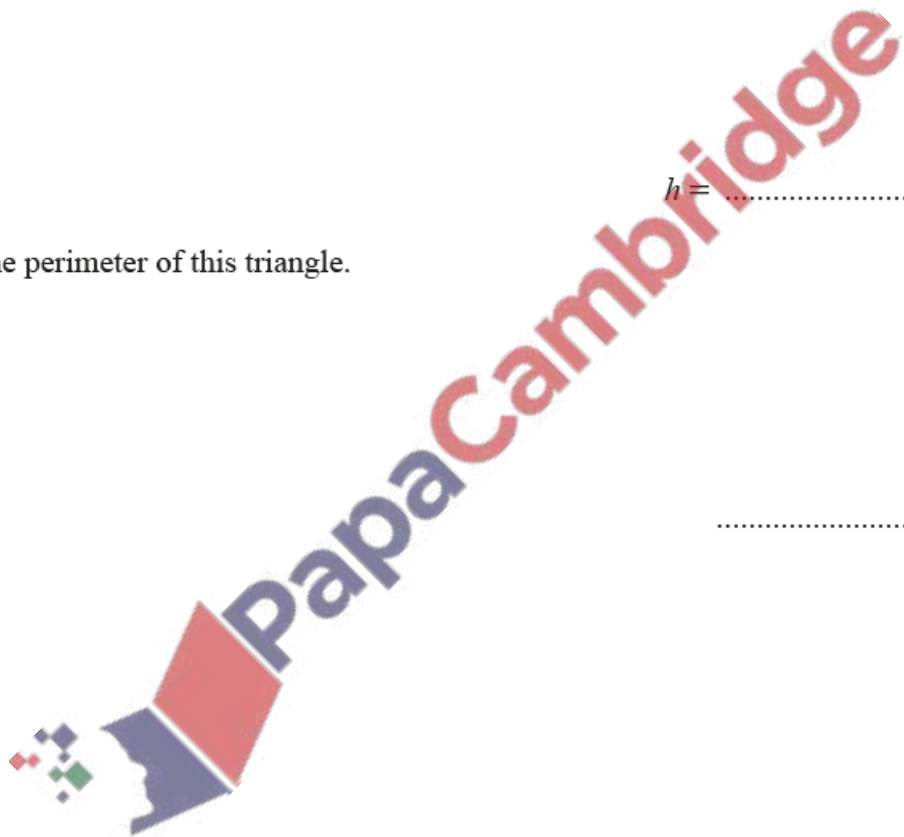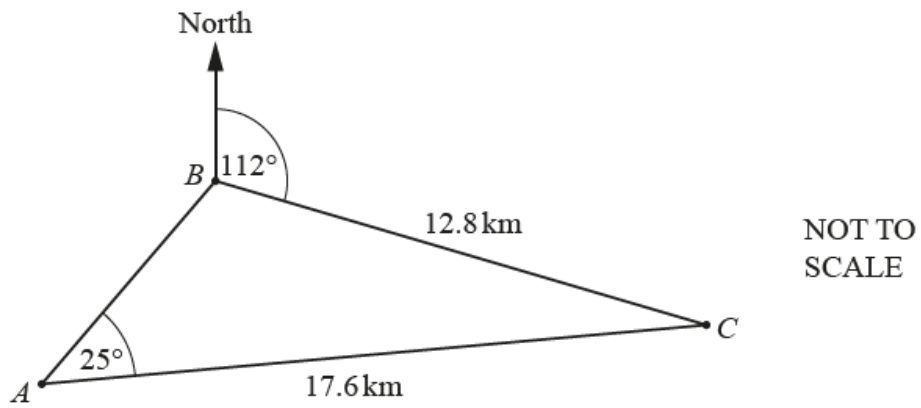
The diagram shows the positions of three ships $A$, $B$ and $C$.
$AC = 17.6$ km, $BC = 12.8$ km and angle $BAC = 25°$.
The bearing of $C$ from $B$ is $112°$ and angle $ABC$ is obtuse.

Calculate the bearing of $B$ from $A$.
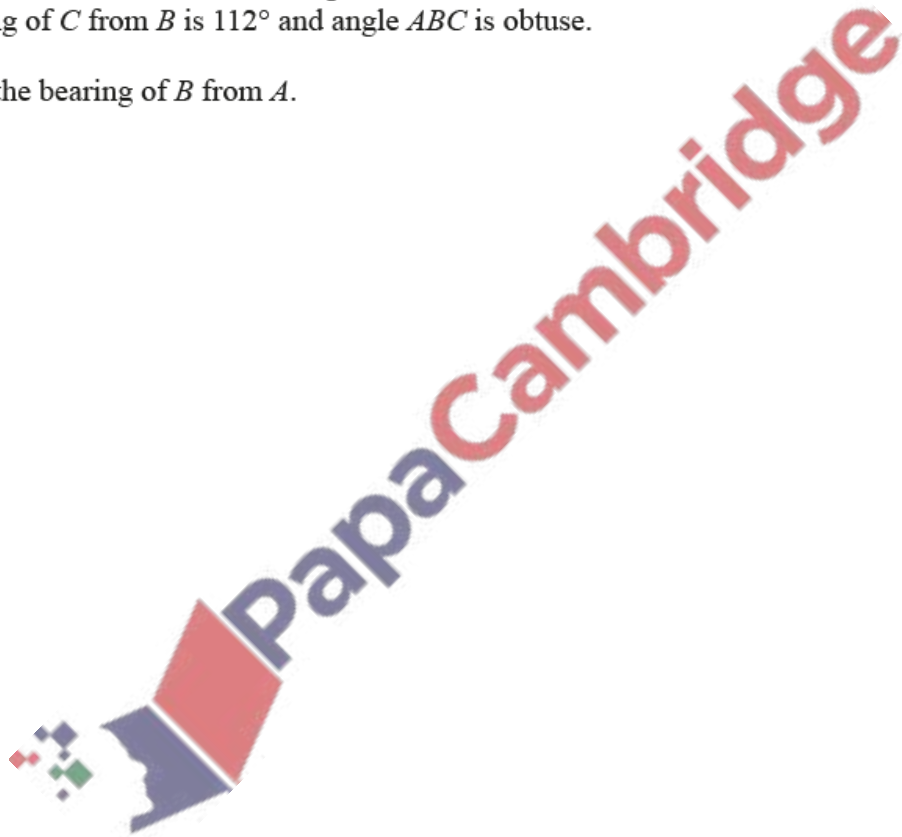
.................................................... [5]

**(a)**
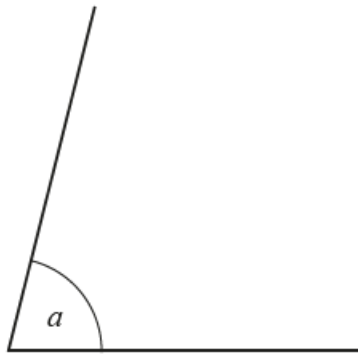


**(i)** Measure the size of angle $a$.

.................................................. [1]

**(ii)** Write down the mathematical name of this type of angle.

.................................................. [1]

**(b)** The scale drawing shows the positions of town $B$ and town $C$.
The scale is 1 cm represents 8 km.
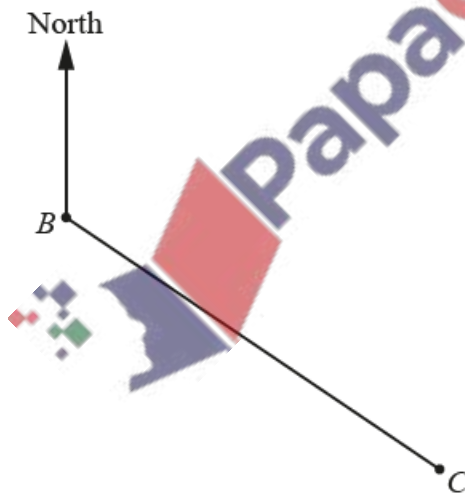


Scale: 1 cm to 8 km

**(i)** Work out the actual distance between town $B$ and town $C$.

.................................................. km [2]

8

**(ii)** Measure the bearing of town $C$ from town $B$.

.................................................. [1]

**(c)**



NOT TO SCALE

The diagram shows two parallel lines and a straight line crossing them.

Find the value of $x$ and the value of $y$.

$x =$ ................................................

$y =$ ................................................ [2]

**(d)** A triangle has angles $119°$, $31°$ and $d°$.

Explain why this triangle is scalene.
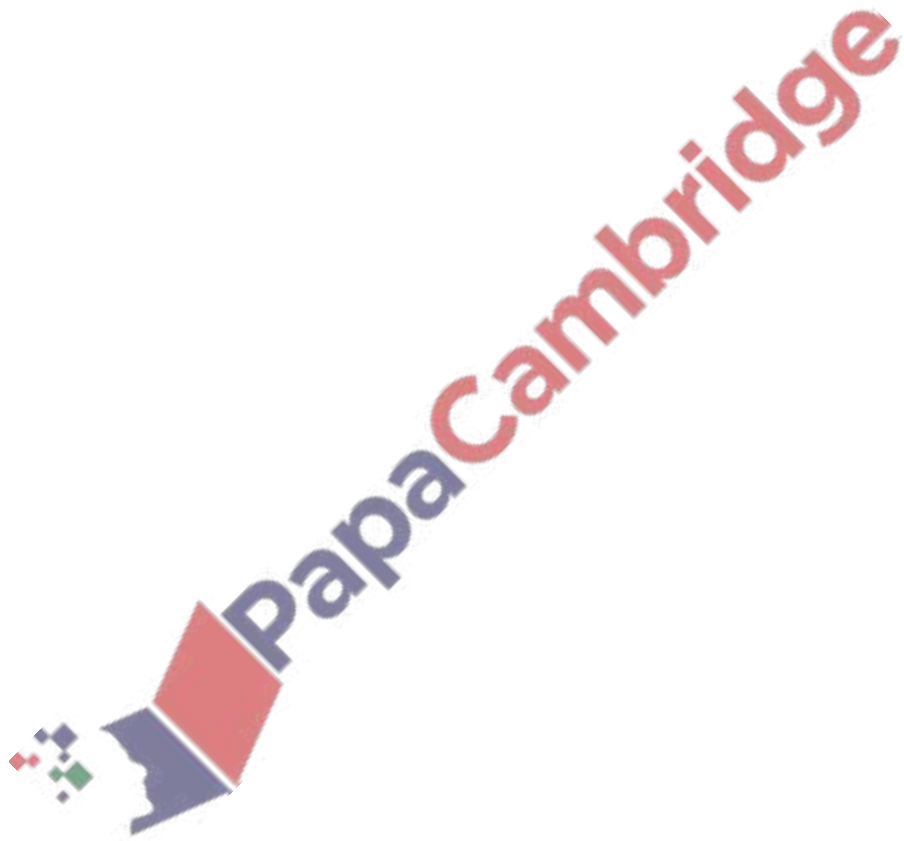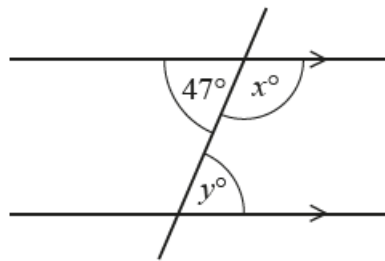You must show your working.

..............................................................................................................................................................

.............................................................................................................................................................. [2]

**(e)** Find the size of one interior angle of a regular 15-sided polygon.

.............................................. [2]

**(f)** One of the angles in a parallelogram is $64°$.

Find the other three angles in this parallelogram.

.................. , .................. , .................. [3]

**(b)** The scale drawing shows the positions of two lifeguards, $L$ and $M$, on a beach.
The scale is 1 centimetre represents 50 metres.

North

$L$

North

$M$

Scale: 1 cm to 50 m

**(i)** Find the actual distance between $L$ and $M$.

................................................ m [2]

**(ii)** Measure the bearing of $M$ from $L$.

................................................ [1]
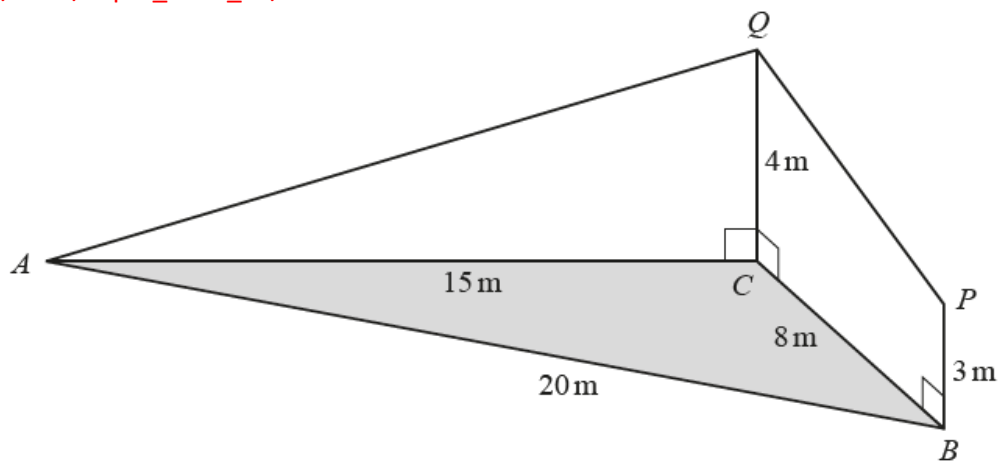
**(iii)** A boat, $B$, is 300 metres from $M$ on a bearing of 068°.

On the scale drawing, mark the position of $B$.

[2]

NOT TO SCALE

*Q*
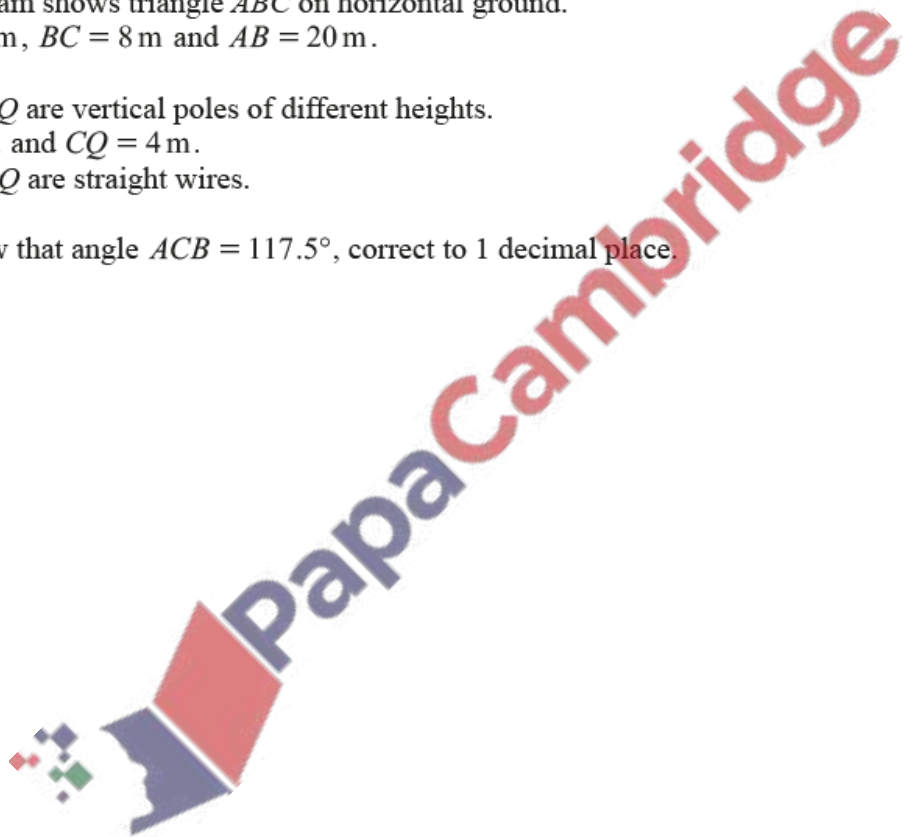
4 m

*A*

15 m

*C*

8 m

*P*

3 m

*B*

20 m

The diagram shows triangle *ABC* on horizontal ground.
*AC* = 15 m, *BC* = 8 m and *AB* = 20 m.

*BP* and *CQ* are vertical poles of different heights.
*BP* = 3 m and *CQ* = 4 m.
*AQ* and *PQ* are straight wires.

**(a)** Show that angle *ACB* = 117.5°, correct to 1 decimal place.

[4]

**(b)** Calculate the area of triangle *ABC*.

.......................................... m² [2]

**(c)** Calculate the length of $AQ$.

..................................................... m  [2]

**(d)** Calculate the angle of elevation of $Q$ from $P$.

..................................................... [3]

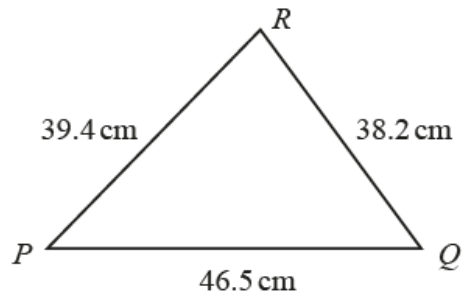**(e)** Another straight wire connects $A$ to the midpoint of $PQ$.

Calculate the angle between this wire and the horizontal ground.

..................................................... [5]

**(a)**

R

39.4 cm          38.2 cm        NOT TO
SCALE

P

46.5 cm    Q
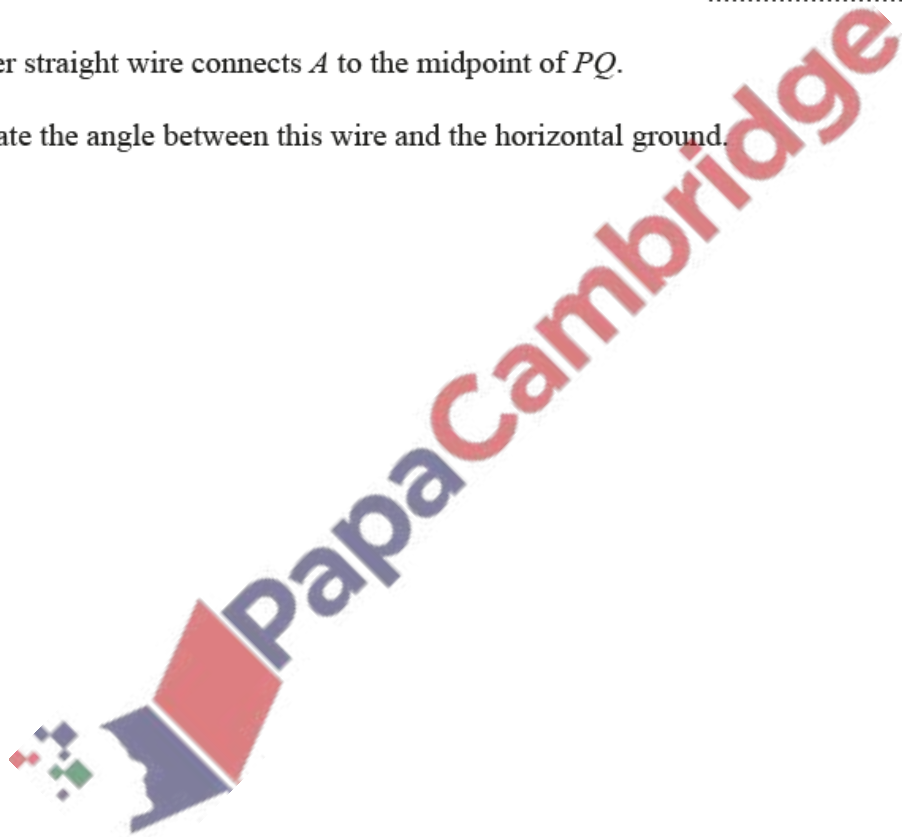
**(i)** Calculate angle $QPR$.

Angle $QPR =$ ................................................. [4]

**(ii)** Find the shortest distance from $Q$ to $PR$.

............................................ cm [3]
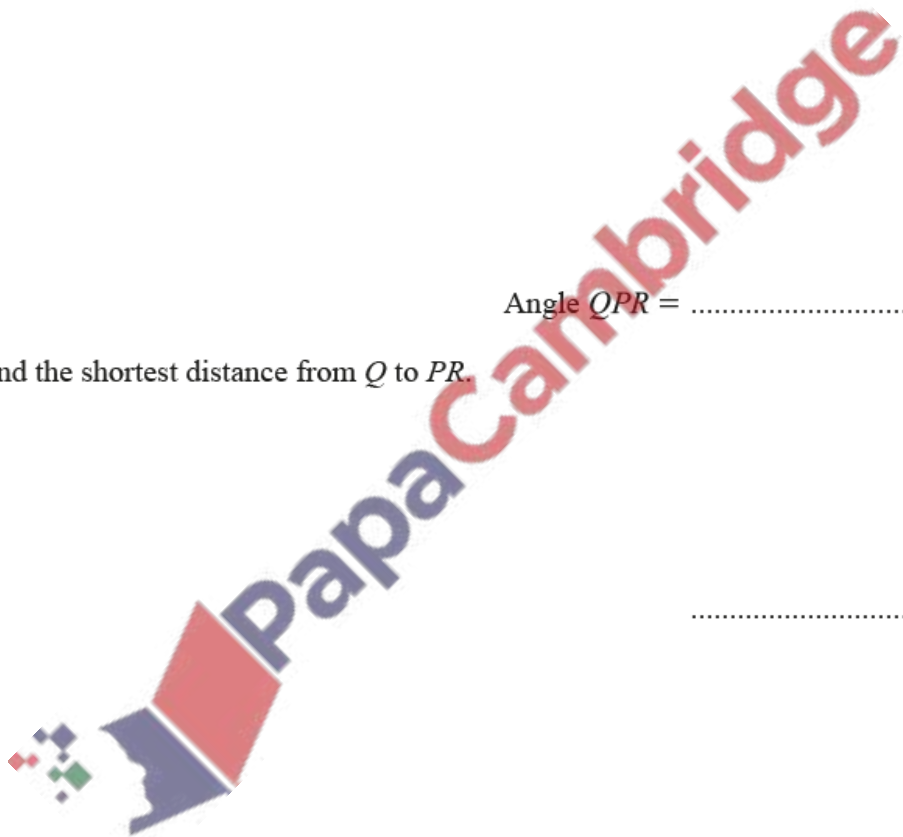
**(b)** The diagram shows a cuboid.
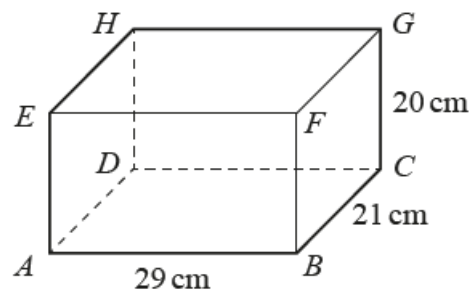


**(i)** Calculate the length $AG$.

$AG = $ .............................................. cm  [3]
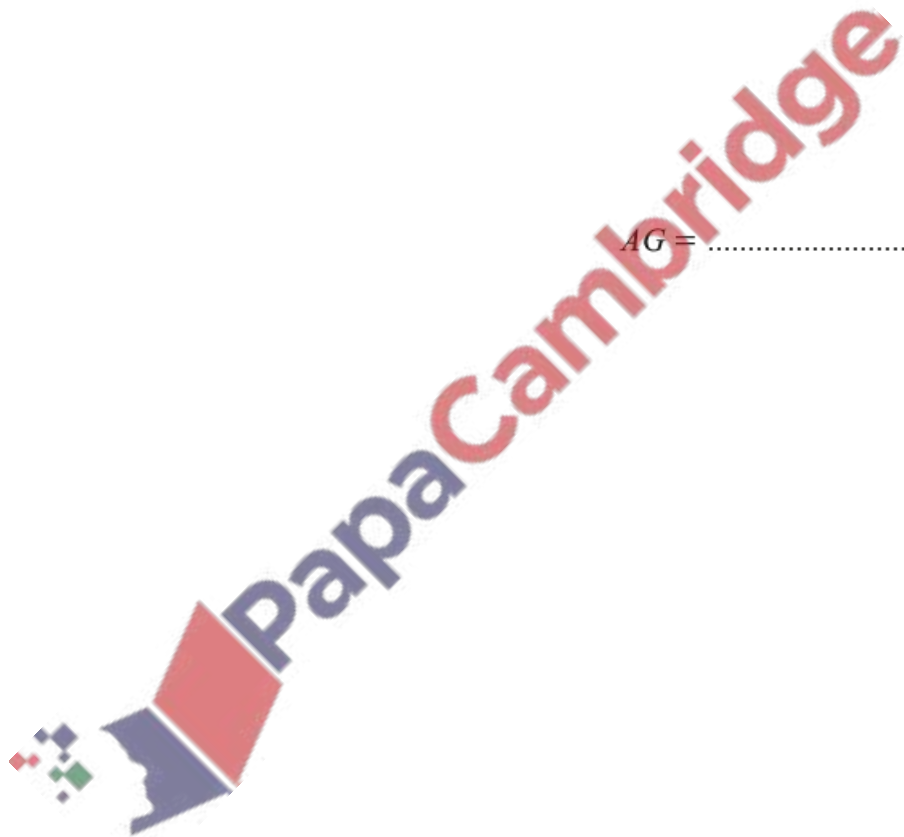
**(ii)** Calculate the angle between $AG$ and the base $ABCD$.

..................................................... [3]

**(c)**

North

$K$

North

NOT TO
SCALE

$112\,\text{km}$

$96°$

$M$

$L$
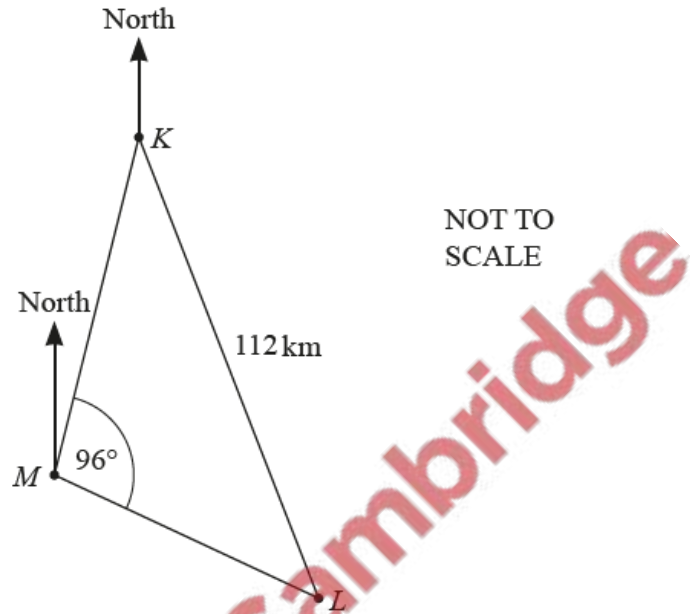
The diagram shows the positions of a lighthouse, $L$, and two ships, $K$ and $M$.
The bearing of $L$ from $K$ is $155°$ and $KL = 112\,\text{km}$.
The bearing of $K$ from $M$ is $010°$ and angle $KML = 96°$.

Find the bearing and distance of ship $M$ from the lighthouse, $L$.

Bearing ...................................................

Distance ........................................... km [5]

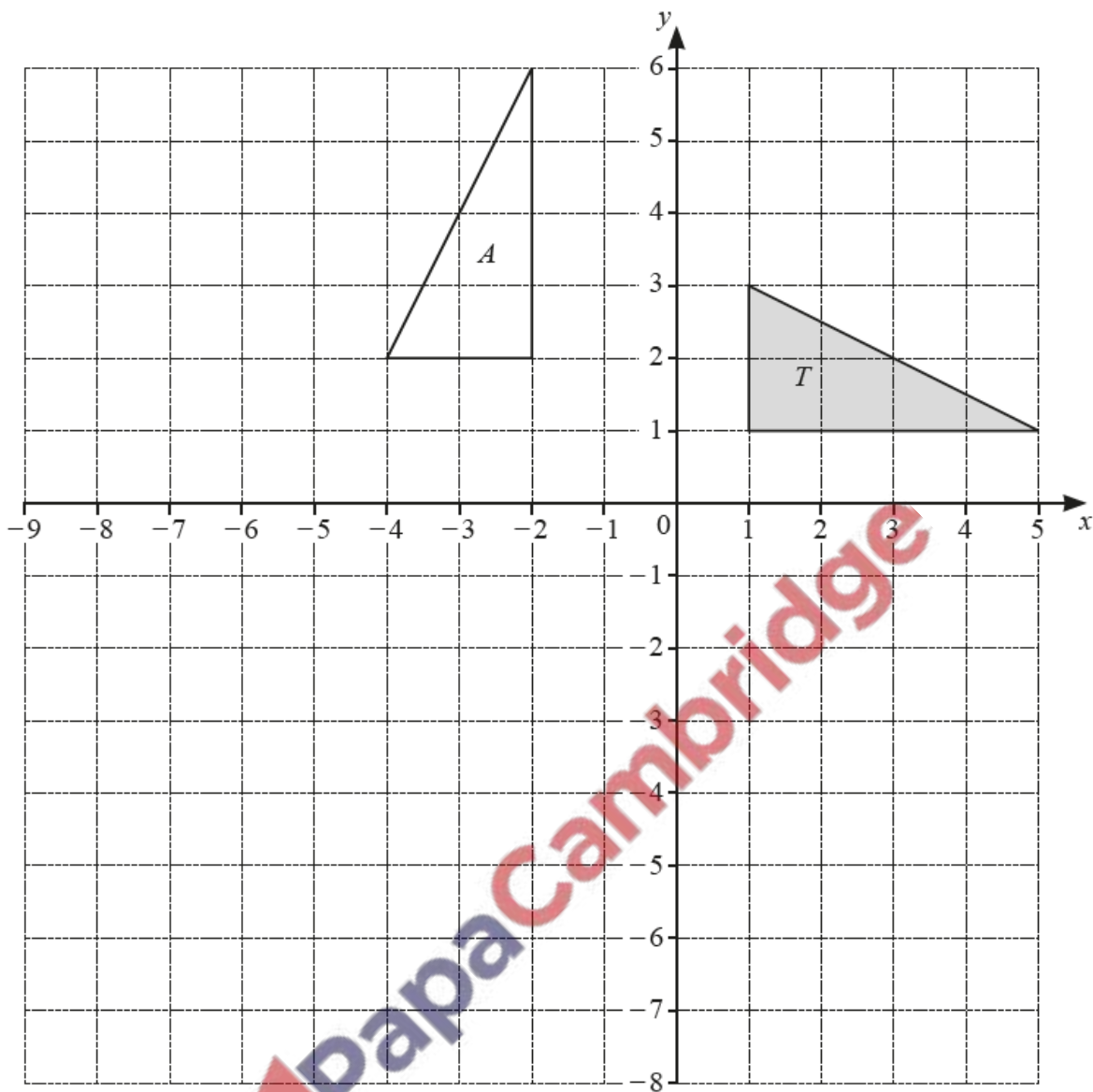(a) Draw the reflection of triangle $T$ in the line $y = -2$. [2]

(b) Draw the enlargement of triangle $T$ with scale factor $\frac{1}{2}$ and centre of enlargement $(-5, -3)$. [2]

(c) Describe fully the **single** transformation that maps triangle $T$ onto triangle $A$.

..............................................................................................................................................................

.................................................................................................................................................. [3]

NOT TO SCALE
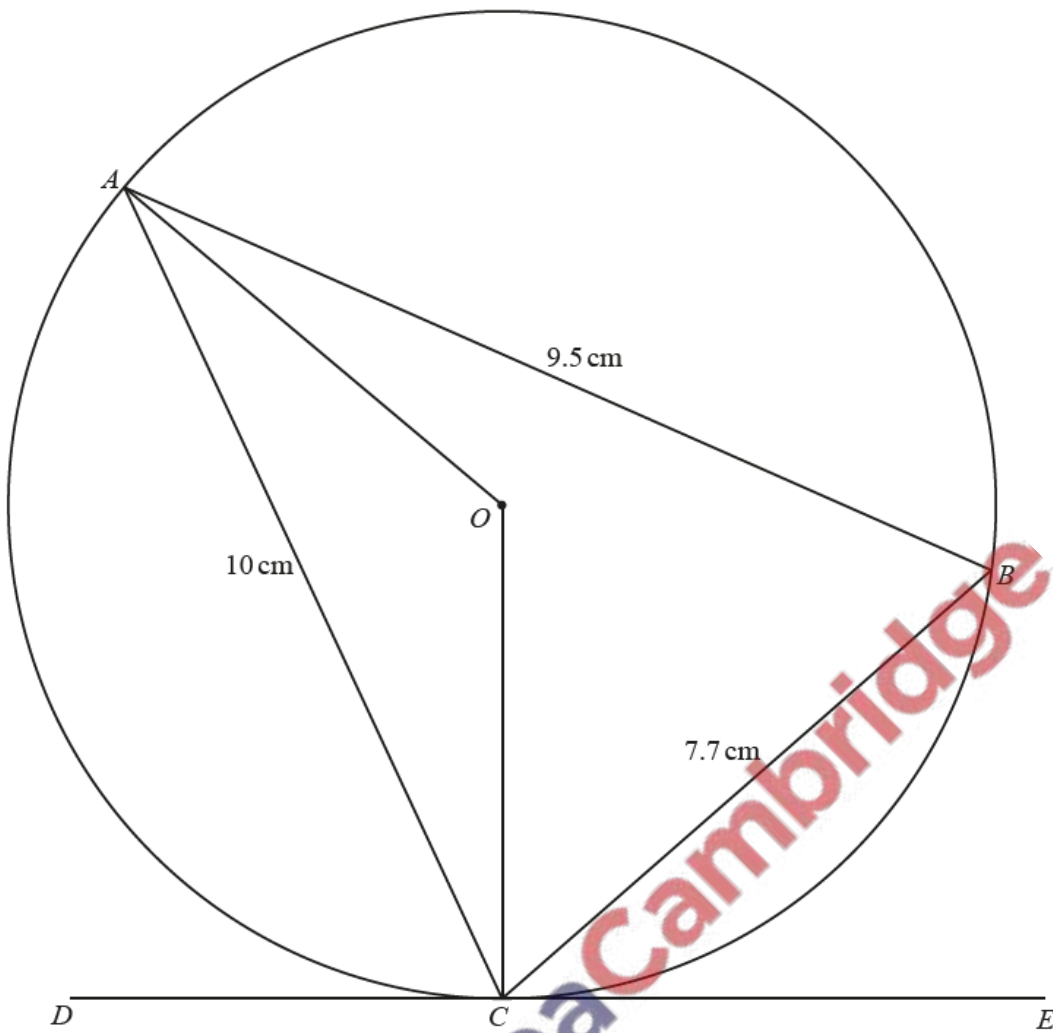
$A$, $B$ and $C$ are points on the circle, centre $O$.
$DE$ is a tangent to the circle at $C$.
$AC = 10$ cm, $AB = 9.5$ cm and $BC = 7.7$ cm.

**(a)** Show that angle $ABC = 70.2°$, correct to 1 decimal place.

[4]

**(b)** Find

    **(i)** angle $AOC$

<div align="right">Angle $AOC$ = ................................................... [1]</div>

    **(ii)** angle $ACO$

<div align="right">Angle $ACO$ = ................................................... [1]</div>

    **(iii)** angle $ACD$.

<div align="right">Angle $ACD$ = ................................................... [1]</div>

**(c)** Calculate the radius, $OC$, of the circle.

<div align="right">$OC$ = ......................................... cm [3]</div>

**(d)** Calculate the area of triangle $ABC$ as a percentage of the area of the circle.

<div align="right">............................................... % [4]</div>