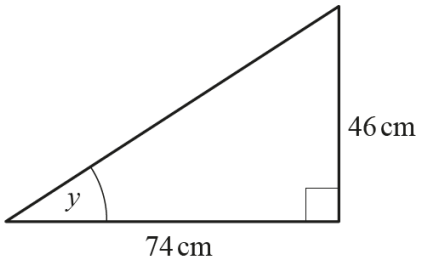
Trigonometry – 2023 IGCSE 0580

1. March/2023/Paper_0580/12/No.24



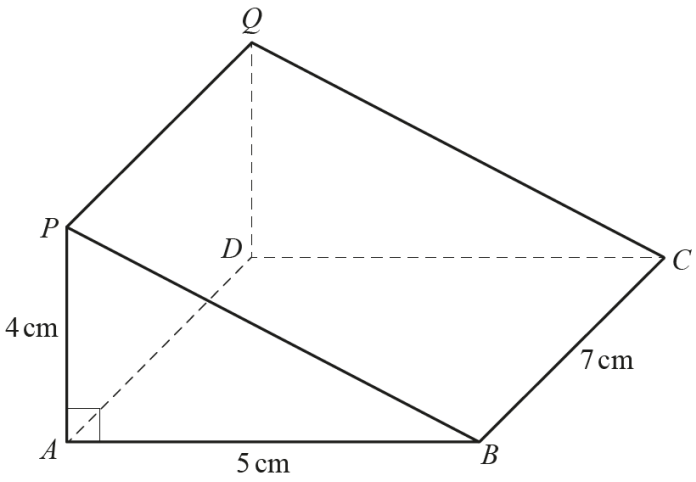
NOT TO SCALE

The diagram shows a right-angled triangle.

Show that angle y is 31.9°, correct to 1 decimal place.

[2]

2. March/2023/Paper_0580/22/No.22



NOT TO SCALE

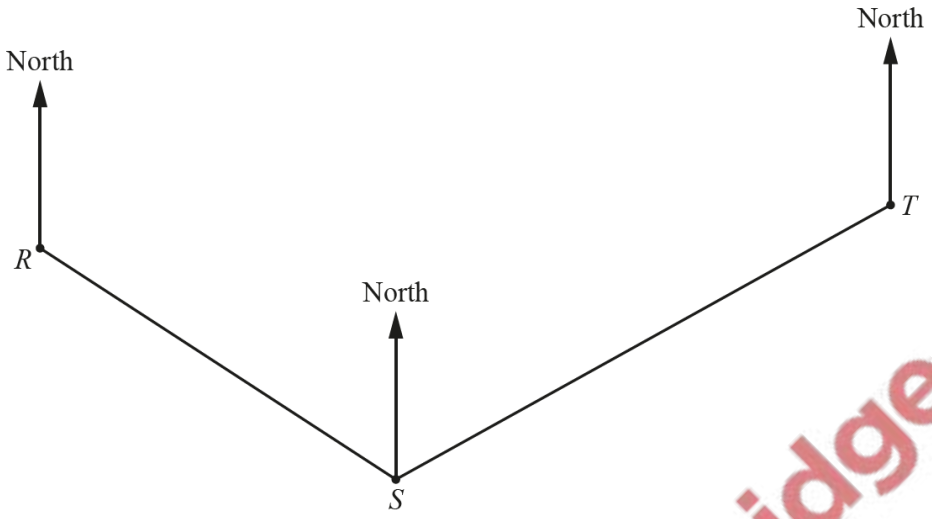
The diagram shows a triangular prism $ABCDQP$ of length 7 cm.
The cross-section is triangle PAB with $PA = 4$ cm, $AB = 5$ cm and angle $PAB = 90°$.

Calculate the angle between the line PC and the base $ABCD$.

..... [4]

3. March/2023/Paper_0580/32/No.7

The scale drawing shows the positions of three towns, R, S and T, on a map.
RS and ST are straight roads between the towns.
The scale is 1 centimetre represents 8 kilometres.



Scale: 1 cm to 8 km

(a) Work out the actual distance between R and S.

..... km [2]

(b) Another town, V, is on a bearing of 163° from R and on a bearing of 215° from T.

Mark the position of V on the map. [2]

(c) A man cycles at a constant speed of 24 km/h along the straight road from S to T.
After 1 hour and 50 minutes he stops at a café, C.

Mark the position of C on the map.
You must show all your working.

[3]

(d) A hotel, H, is on a bearing of 321° from R.

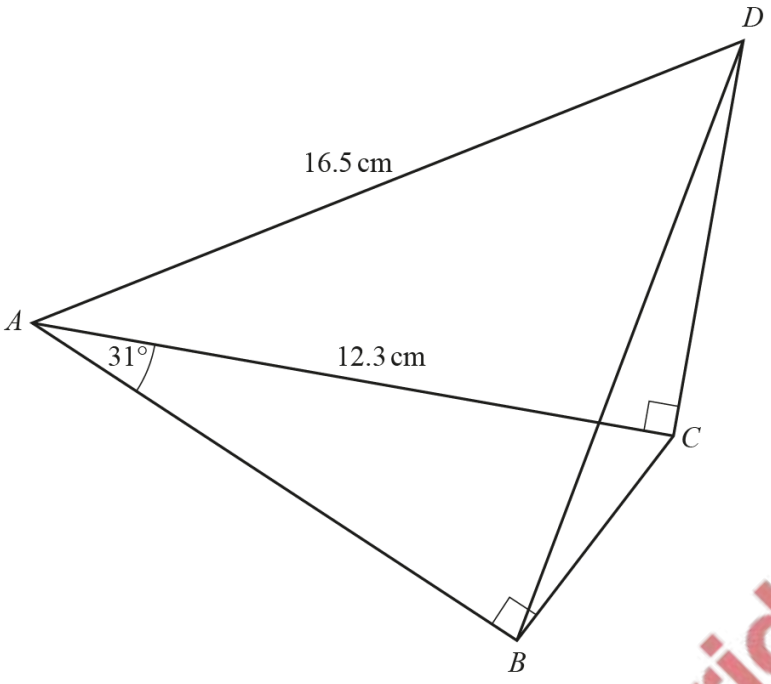
Work out the bearing of R from H.

..... [2]

(e) Write the scale 1 cm to 8 km in the form $1 : n$.

1 : ..... [1]

4. March/2023/Paper_0580/42/No.10



NOT TO SCALE

The diagram shows a quadrilateral $ABCD$.
$AC = 12.3$ cm and $AD = 16.5$ cm.
Angle $BAC = 31°$, angle $ABC = 90°$ and angle $ACD = 90°$.

(a) Show that $AB = 10.54$ cm, correct to 2 decimal places.

[2]

(b) Show that angle $DAC = 41.80°$ correct to 2 decimal places.

[2]

(c) Calculate BD.

$BD =$ .....cm [3]

(d) Calculate angle CBD.

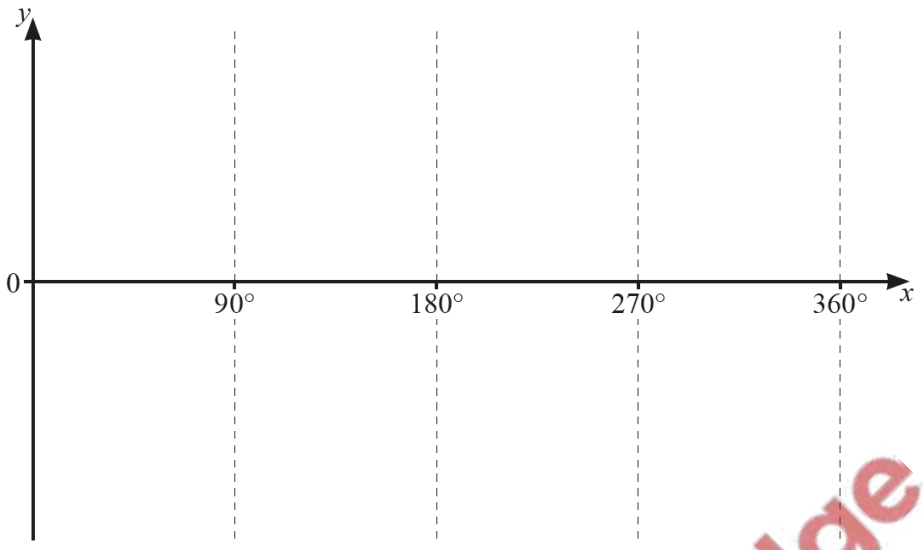
Angle $CBD =$ ..... [4]

(e) Calculate the shortest distance from C to BD.

..... cm [4]

5. March/2023/Paper_0580/42/No.12

(a) Sketch the graph of $y = \tan x$ for $0° \leqslant x \leqslant 360°$.

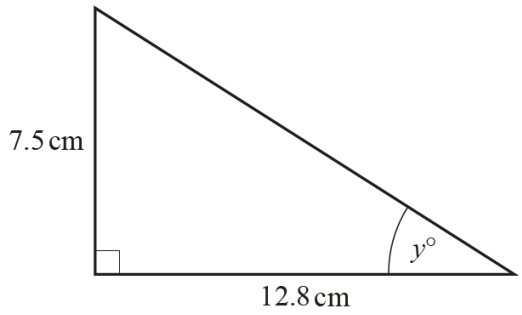


[2]

(b) Find x when $\tan x = \frac{1}{\sqrt{3}}$ and $0° \leqslant x \leqslant 360°$.

..... [2]

6. June/2023/Paper_0580/11/No.22



NOT TO SCALE

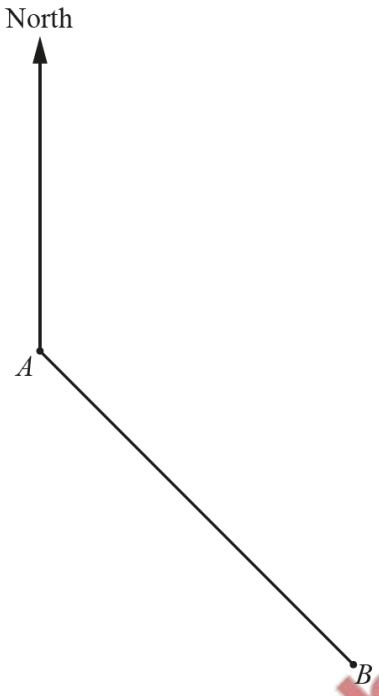
The diagram shows a right-angled triangle.

Calculate the value of y.

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

7. June/2023/Paper_0580/12/No.9

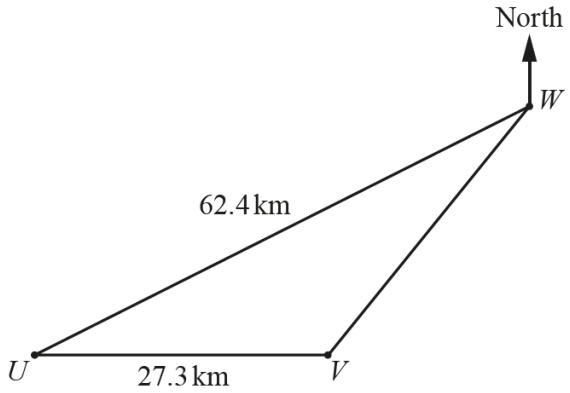
The scale drawing shows the positions of town A and town B.



Measure the bearing of town B from town A.

..... [1]

8. June/2023/Paper_0580/21/No.18



NOT TO SCALE

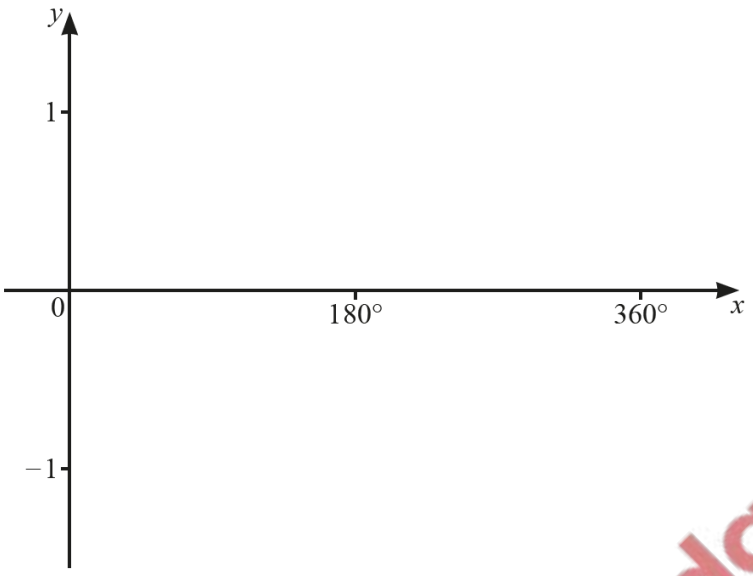
The diagram shows the position of three towns, U, V and W.
U is due west of V and angle $UVW = 125°$.

Calculate the bearing of U from W.

..... [4]

9. June/2023/Paper_0580/21/No.19

(a) On the diagram, sketch the graph of $y = \cos x$ for $0° \leqslant x \leqslant 360°$.



[2]

(b) Solve the equation $5\cos x + 3 = 0$ for $0° \leqslant x \leqslant 360°$.

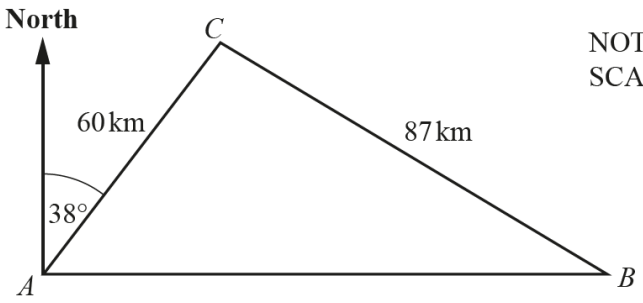
$x =$ ..... or $x =$ ..... [3]

10. June/2023/Paper_0580/22/No.21

Solve the equation $5\sin x = -3$ for $0° \leqslant x \leqslant 360°$.

..... [3]

11. June/2023/Paper_0580/42/No.7



The diagram shows the straight roads between town A, town B and town C.
$AC = 60$ km, $CB = 87$ km and B is due east of A.
The bearing of C from A is 038°.

(a) Show that angle $ACB = 95.1°$, correct to 1 decimal place.

[5]

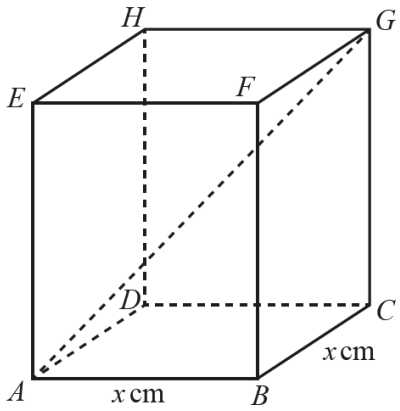
(b) Without stopping, a car travels from town A to town C then to town B, before returning directly to town A.
The total time taken for the journey is 3 hours 20 minutes.

Calculate the average speed of the car for this journey.
Give your answer in kilometres per hour.

..... km/h [6]

12. June/2023/Paper_0580/42/No.10

(a)



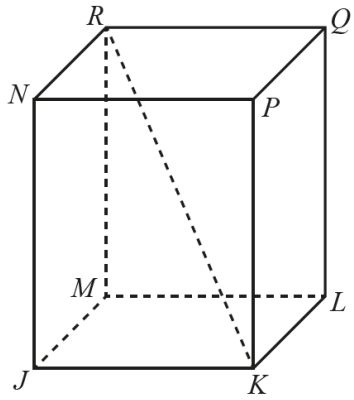
NOT TO SCALE

ABCDEFGH is a cuboid with a square base of side x cm.
$CG = 20$ cm and $AG = 28$ cm.

Calculate the value of x.

$x =$ ..... [4]

(b)



NOT TO SCALE

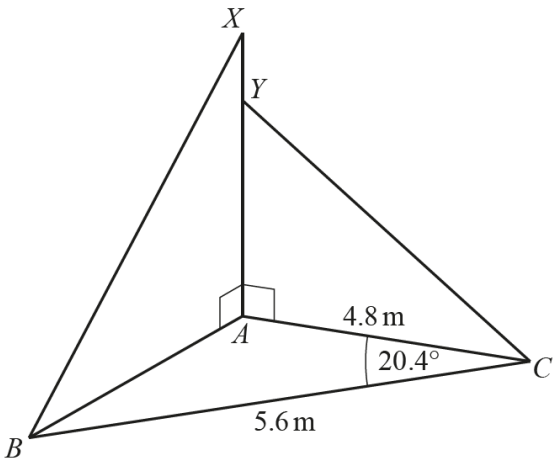
The diagram shows a different cuboid $JKLMNPQR$.
$MR = 30$ cm correct to the nearest centimetre.
$KR = 37$ cm correct to the nearest centimetre.

Calculate the lower bound of the angle between KR and the base $JKLM$ of the cuboid.

..... [4]

13. June/2023/Paper_0580/43/No.5

(a)



NOT TO SCALE

ABC is a scalene triangle on horizontal ground.
AYX is a straight vertical post, held in place by two straight wires XB and YC.
$AC = 4.8$ m, $BC = 5.6$ m and angle $ACB = 20.4°$.

(i) Calculate AB.

$AB =$ ..... m [3]

(ii) Angle $XBA = 64°$.

Calculate AX.

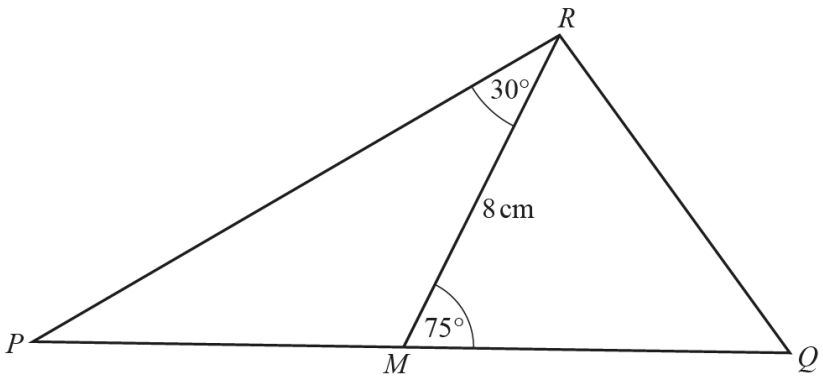
$AX =$ ..... m [2]

(iii) $AY = 2.9$ m.

Calculate the area of triangle YAC.

..... m^2 [2]

(b)



NOT TO SCALE

In triangle PQR, M is the midpoint of PQ.
$RM = 8$ cm, angle $PRM = 30°$ and angle $RMQ = 75°$.

Calculate PQ.

$PQ =$ ..... cm [5]