Name	Class

MATHS TEACHER HUB

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Trigonometry

(9 – 1) Topic booklet

Higher

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

•Use **black** ink or ball-point pen.
•**Fill in the boxes** at the top of this page with your name, centre number and candidate number.
•Answer **all** questions.
•Answer the questions in the spaces provided
– *there may be more space than you need*.
•Diagrams are NOT accurately drawn, unless otherwise indicated.
•You must **show all your working out.**
•If the question is a **1H** question you are not allowed to use a calculator.
•If the question is a **2H** or a **3H** question, you may use a calculator to help you answer.

Information

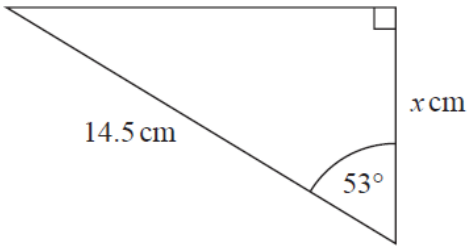
•The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question*.

Advice

•Read each question carefully before you start to answer it.
•Keep an eye on the time.
•Try to answer every question.
•Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

5

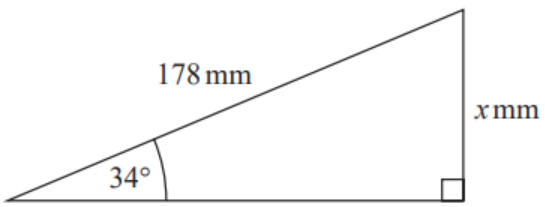


Work out the value of x.
Give your answer correct to 3 significant figures.

$x =$ .....

November 2022 – Paper 2H **(Total for Question 5 is 2 marks)**

5

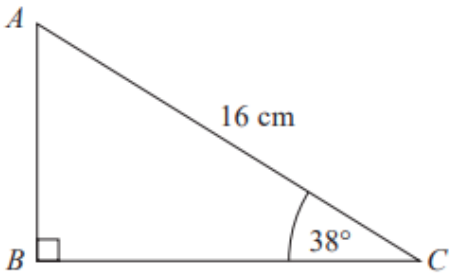


Work out the value of x.
Give your answer correct to 1 decimal place.

.....

November 2020 – Paper 2H **(Total for Question 5 is 2 marks)**

5 ABC is a right-angled triangle.

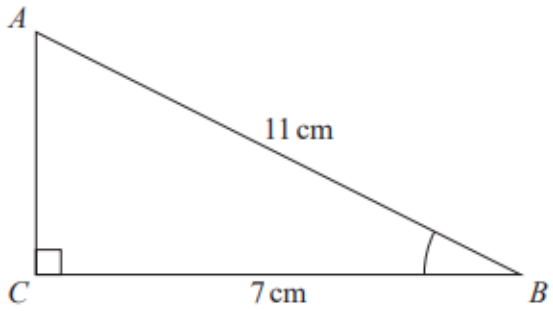


Calculate the length of AB.
Give your answer correct to 2 decimal places.

.....cm

June 2019 – Paper 2H **(Total for Question 5 is 2 marks)**

5 ABC is a right-angled triangle.



(a) Work out the size of angle ABC.
Give your answer correct to 1 decimal place.

.....°

(2)

The length of the side AB is reduced by 1 cm.

The length of the side BC is still 7 cm.
Angle ACB is still 90°

(b) Will the value of cos ABC increase or decrease?
You must give a reason for your answer.

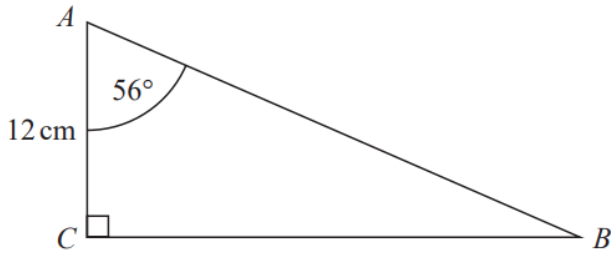
.....

.....

(1)

(Total for Question 5 is 3 marks)

6 *ABC* is a right-angled triangle.

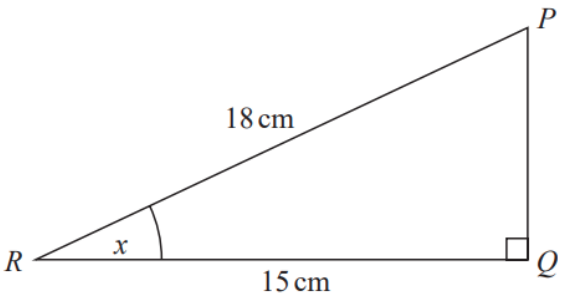


(a) Work out the length of *BC*.
Give your answer correct to 1 decimal place.

..... cm

(2)

PQR is a right-angled triangle.



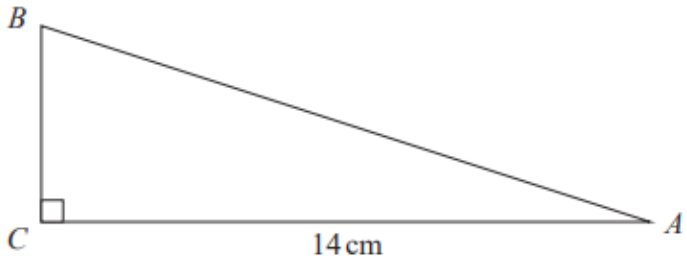
(b) Work out the size of the angle marked *x*.
Give your answer correct to 1 decimal place.

.....°

(2)

(Total for Question 6 is 4 marks)

6 ABC is a right-angled triangle.



$AC = 14$ cm.
Angle $C = 90°$

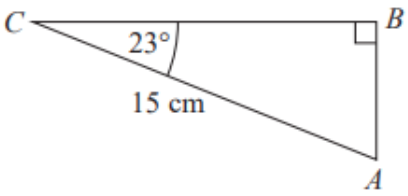
size of angle B : size of angle $A = 3 : 2$

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

..... cm

November 2018 – Paper 3H **(Total for Question 6 is 4 marks)**

7 ABC is a right-angled triangle.



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

.....cm

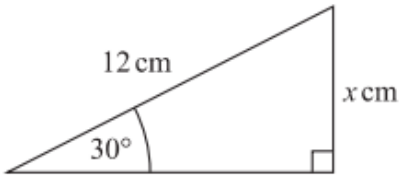
June 2017 – Paper 3H **(Total for Question 7 is 2 marks)**

7 (a) Write down the exact value of $\cos 30°$

.....

(1)

(b)



Given that $\sin 30° = 0.5$,
work out the value of x.

.....

(2)

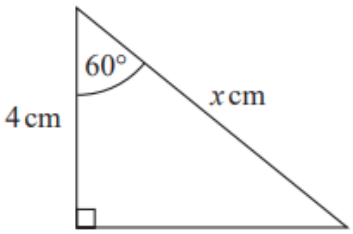
Specimen 1 – Paper 1H **(Total for Question 7 is 3 marks)**

8 (a) Write down the exact value of tan 45°

.....

(1)

Here is a right-angled triangle.



cos 60° = 0.5

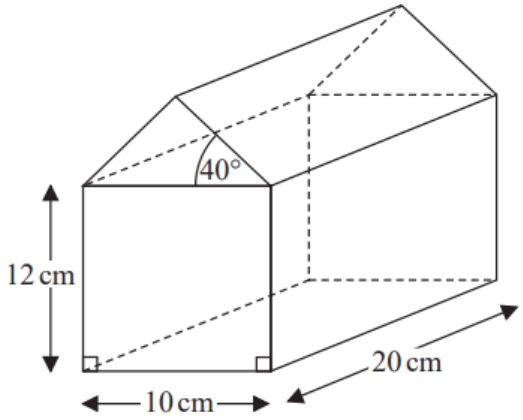
(b) Work out the value of x.

.....

(2)

(Total for Question 8 is 3 marks)

9 The diagram shows a prism.



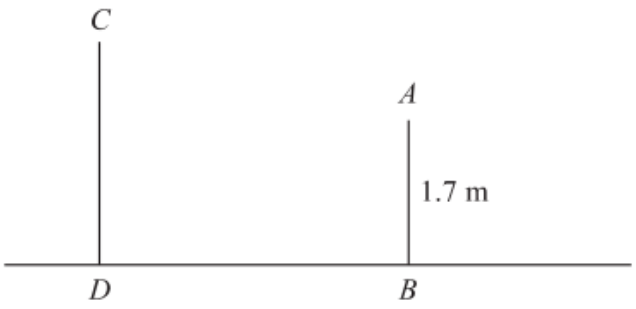
The cross section of the prism has exactly one line of symmetry.

Work out the volume of the prism.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 9 is 5 marks)

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



$AB = 1.7$ m
$CD : AB = 1.5 : 1$

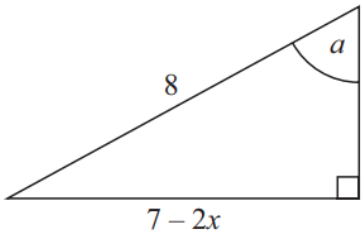
The angle of elevation of C from A is 52°

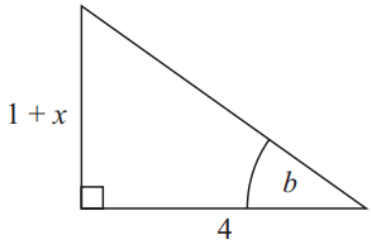
Calculate the length of BD.
Give your answer correct to 3 significant figures.

.....m

(Total of Question 9 is 4 marks)

10 The diagram shows two right-angled triangles.





All lengths are measured in centimetres.

Given that

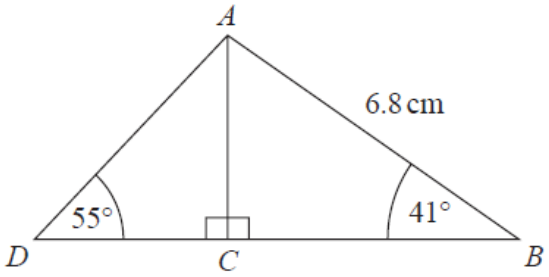
$$\sin a = \tan b$$

work out the value of x.

$x =$ .....

(Total for Question 10 is 3 marks)

10 ABD is a triangle.
C is a point on BD.

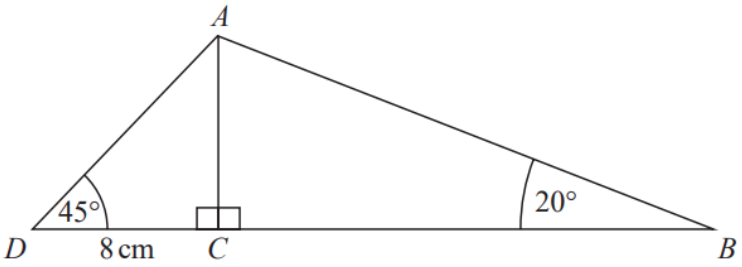


Work out the length of DC.
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 10 is 3 marks)

12 ABC and ACD are right-angled triangles.



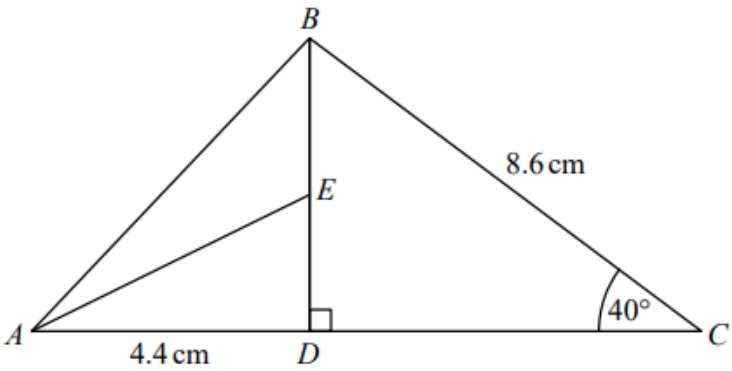
$DC = 8$ cm
Angle $ADC = 45°$
Angle $ABC = 20°$

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

..... cm

(Total for Question 12 is 3 marks)

12 The diagram shows triangle *ABC*.



ADC and *DEB* are straight lines.

AD = 4.4 cm
BC = 8.6 cm
E is the midpoint of *DB*.

Angle *CDB* = 90°
Angle *DCB* = 40°

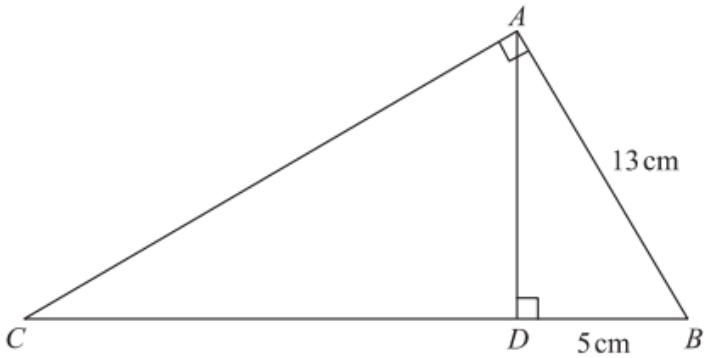
Work out the size of angle *EAD*.
Give your answer correct to 1 decimal place.
You must show all your working.

°

.....

(Total for Question 12 is 4 marks)

14 *ABC* and *ABD* are two right-angled triangles.



Angle *BAC* = angle *ADB* = 90°

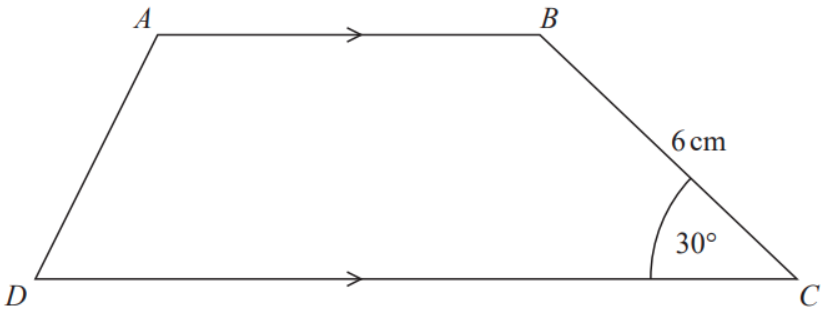
AB = 13 cm
DB = 5 cm

Work out the length of *CB*.

..... cm

(Total for Question 14 is 3 marks)

18 Here is trapezium $ABCD$.



The area of the trapezium is $66\,cm^2$

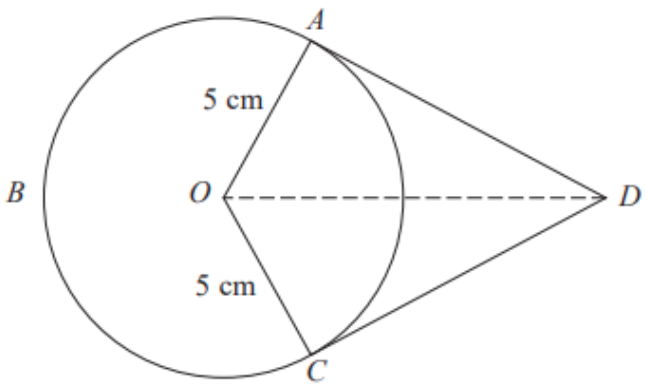
the length of AB : the length of $CD = 2 : 3$

Find the length of AB.

..... cm

(Total for Question 18 is 5 marks)

18



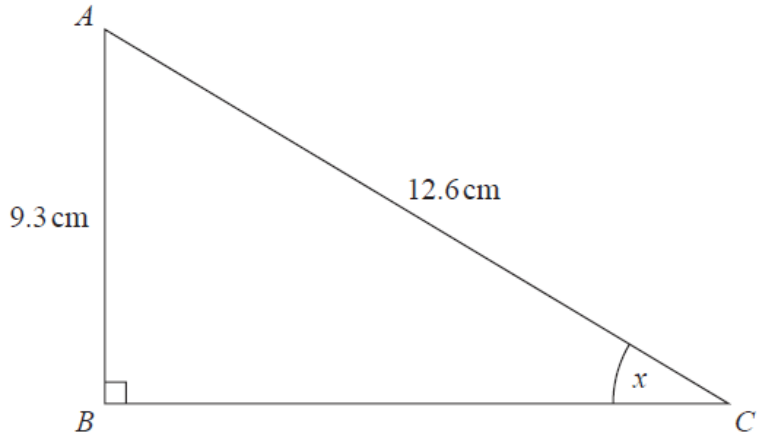
A, *B* and *C* are points on a circle of radius 5 cm, centre *O*.
DA and *DC* are tangents to the circle.
DO = 9 cm

Work out the length of arc *ABC*.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 18 is 5 marks)

19 ABC is a right-angled triangle.



$AB = 9.3$ cm correct to the nearest mm.
$AC = 12.6$ cm correct to the nearest mm.

Calculate the lower bound for the size of the angle marked x.
You must show all your working.

°

(Total for Question 19 is 3 marks)