

Write your name here

Surname

Other names

In the style of:

Edexcel GCSE

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--

Mathematics A

Trigonometry

Higher Tier

Past Paper Style Questions
Arranged by Topic

Paper Reference

1MA0/2H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

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.*
- **Calculators may be used.**



Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

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.

Turn over ►



1. ABC is a right-angled triangle. $AB = 18$ cm and $BC = 6$ cm.
The line BD bisects the angle ABC .

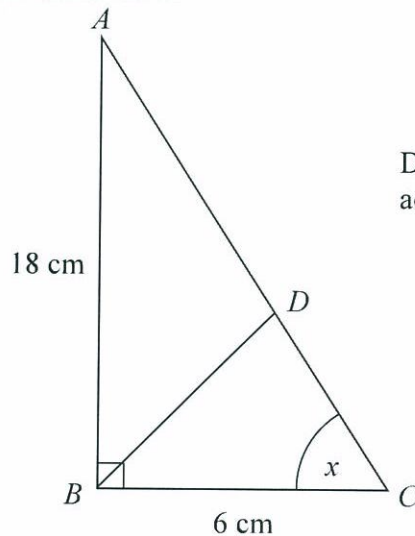


Diagram NOT accurately drawn

- (a) Write down the value of $\tan x$.

$$\tan x = \frac{O}{A} = \frac{18}{6} = 3$$

3

- (b) Calculate the length BD .

(1)

$$x = \tan^{-1} 3 \quad \text{and} \quad \hat{C}BD = 45^\circ$$

$$\text{From the sine rule, } \frac{BD}{\sin x} = \frac{6}{\sin(\hat{B}DC)}$$

$$\text{and } \hat{B}DC = 180 - 45 - \tan^{-1} 3 = 135 - \tan^{-1} 3 = 63.4^\circ \text{ (3 s.f.)}$$

$$\text{So } \frac{BD}{\sin(\tan^{-1} 3)} = \frac{6}{\sin(135 - \tan^{-1} 3)}$$

$$\Rightarrow BD = \frac{6 \sin(\tan^{-1} 3)}{\sin(135 - \tan^{-1} 3)}$$

$$= 6.36 \text{ cm (3 s.f.)}$$

$$\dots\dots\dots 6.36 \text{ cm (3 s.f.)}$$

(5)

(Total 6 marks)



2. Here is a right-angled triangle.

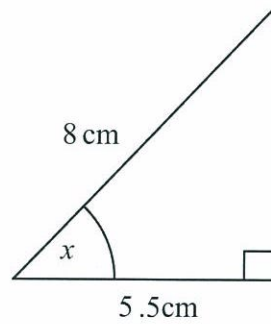


Diagram **NOT**
accurately drawn

- (a) Calculate the size of the angle marked x .
Give your answer correct to 1 decimal place.

$$x = \cos^{-1}\left(\frac{5.5}{8}\right) = 46.6^\circ \text{ (1d.p.)}$$

$$x = \frac{46.6^\circ}{(3)}$$

Here is another right-angled triangle.

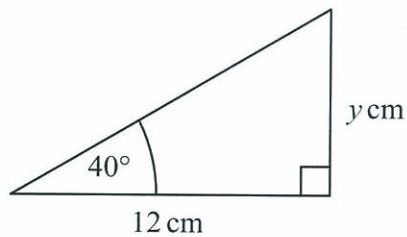


Diagram **NOT**
accurately drawn

- (b) Calculate the value of y .
Give your answer correct to 1 decimal place.

$$\tan 40^\circ = \frac{y}{12}$$

$$y = 12 \tan 40^\circ = 10.1 \text{ cm (1d.p.)}$$

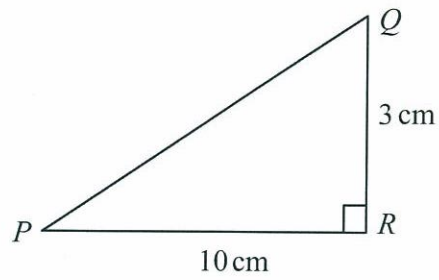
$$y = \frac{10.1 \text{ cm}}{(3)}$$

(Total 6 marks)



3.

Diagram **NOT**
accurately drawn



PQR is a right-angled triangle.

$$QR = 3 \text{ cm}$$
$$PR = 10 \text{ cm}$$

Work out the size of angle RPQ .
Give your answer correct to 3 significant figures.

$$\tan(\hat{RPQ}) = \frac{3}{10}$$

$$\Rightarrow \hat{RPQ} = \tan^{-1} 0.3 = 16.7^\circ \text{ (3s.f.)}$$

.....
16.7 °

(Total 3 marks)



4.

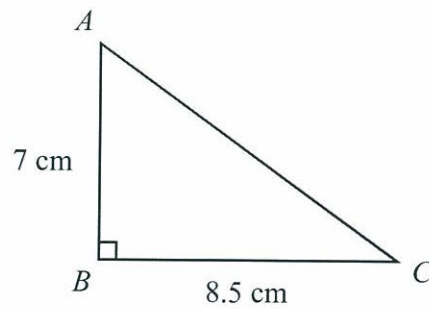


Diagram NOT
accurately drawn

ABC is a right-angled triangle.

$AB = 7$ cm,

$BC = 8.5$ cm.

(a) Work out the area of the triangle.

$$\text{Area of triangle} = \frac{1}{2} \times \text{Base} \times \text{Height}$$

$$= \frac{7 \times 8.5}{2} = 29.75 \text{ cm}^2$$

$$\begin{array}{r} 29.75 \\ \hline \end{array} \text{ cm}^2$$

(2)

(b) Work out the length of AC .

Give your answer correct to 2 decimal places.

$$\begin{aligned} AC &= \sqrt{8.5^2 + 7^2} \\ &= 11.01 \text{ cm (2d.p.)} \end{aligned}$$

$$\begin{array}{r} 11.01 \\ \hline \end{array} \text{ cm}$$

(3)

