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**Trigonometry**

**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.*
* You must **show all your working.**
* Diagrams are **NOT** accurately drawn, unless otherwise indicated.
* If your calculator does not have a *π* button, take the value of *π* to be3.142

unless the question instructs otherwise.

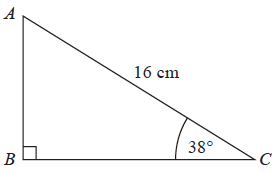
**Information**

* The total mark for this paper is **19**. There are **8** questions.
* Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
* 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**

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

**1** *ABC* is a right-angled triangle.



Calculate the length of *AB*.

Give your answer correct to 2 decimal places.

.......................................................cm

**(Total for Question 1 is 2 marks)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2** *ABC* is a right-angled triangle.

**

Calculate the length of *BC*.

Give your answer correct to 1 decimal place.

....................................................... cm

**(Total for Question 2 is 3 marks)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3** *ABC* is a right-angled triangle.

**

Work out the size of the angle marked *x*.

Give your answer correct to 1 decimal place.

....................................................... °

**(Total for Question 3 is 2 marks)**

**4** *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 4 is 3 marks**)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5** *ABCD* is a trapezium.

**

Work out the size of angle *CDA*.

Give your answer correct to 1 decimal place.

.....................................................°

**(Total for Question 5 is 5 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

**(Total for Question 6 is 4 marks)**

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**7** *PQR* is a right-angled triangle.



Work out the size of the angle marked *x*.

Give your answer correct to 1 decimal place.

.......................................................°

**(Total for Question 7 is 2 marks)**

**8** (*a*)Write down the exact value of cos30°

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

**(1)**

(*b*)

**

Given that sin30° = 0.5,

work out the value of *x*.

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

**(2)**

**(Total for Question 8 is 3 marks)**

**TOTAL MARKS FOR PAPER: 19**