Additional working space

Question number: _____

Christ Church Grammar School

2020
TEST 1

MATHEMATICS METHODS Year 11
Section One:
Calculator-free

Your name _____

Teacher name _____

Time and marks available for this section
Reading time before commencing work: 2 minutes
Working time for this section: 15 minutes
Marks available: 17 marks

Materials required/recommended for this section
To be provided by the supervisor
This Question/Answer Booklet
Formula Sheet

To be provided by the candidate
Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: nil

Important note to candidates
No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Instructions to candidates

1. The rules of conduct of the CCGS assessments are detailed in the Reporting and Assessment Policy. Sitting this assessment implies that you agree to abide by these rules.

2. Write your answers in this Question/Answer Booklet using blue/black pen. Do not use erasable or gel pen.

3. Answer all questions.

4. You must be careful to confine your response to the specific question asked and to follow any instructions that are specified to a particular question.

5. Supplementary pages for the use of planning/continuing your answer to a question have been provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

6. **Show all your working clearly**. Your working should be in sufficient detail to allow your answers to be checked readily and for marks to be awarded for reasoning. Incorrect answers given without supporting reasoning cannot be allocated any marks. For any question or part question worth more than two marks, valid working or justification is required to receive full marks. If you repeat an answer to any question, ensure that you cancel the answer you do not wish to have marked.

7. It is recommended that **you do not use pencil**, except in diagrams.

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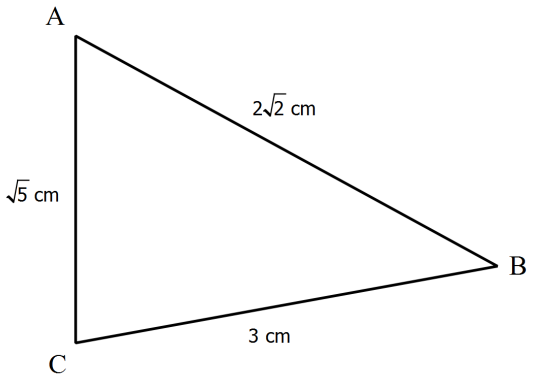
Additional working space

Question number: _____

Question 4 **(3 marks)**

Consider the diagram below, not drawn to scale.



Calculate the size of $\angle ABC$.

End of questions

Question 1 **(5 marks)**

(a) Convert the following angles. Simplify your answer.

(i) $210°$ to radians. (1 mark)

(ii) $\frac{4\pi}{3}$ radians to degrees. (1 mark)

(b) Determine the third angle of a triangle when two of the angles are given as being $\frac{\pi}{4}$ and $\frac{\pi}{3}$ radians. (1 mark)

(c) Write the exact value of the following expression:

$\sin\left(\frac{\pi}{3}\right)\tan\left(\frac{\pi}{4}\right)+\cos\left(\frac{\pi}{6}\right)\tan\left(\frac{\pi}{6}\right)$ (2 marks)

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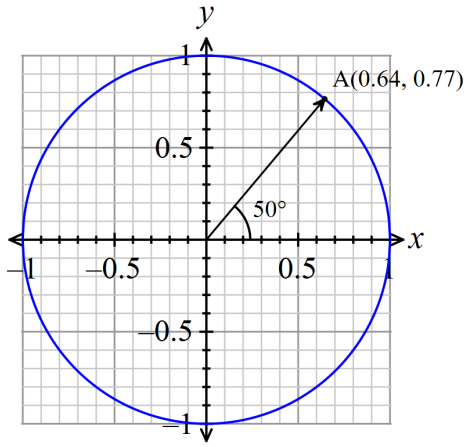
Question 2 **(5 marks)**

Point A lies on the circumference of the unit circle as shown in the diagram below.



(a) Determine the value of:

(i) $\cos(50°)$ (1 mark)

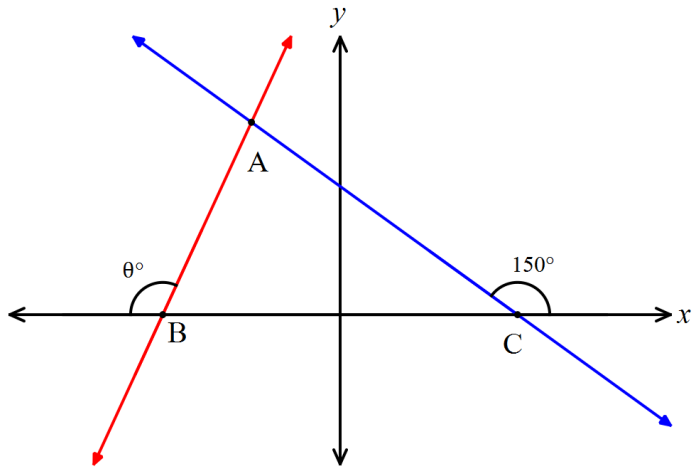
(ii) $\cos(-50°)$ (1 mark)

(iii) $\cos(310°)$ (1 mark)

(b) Interpret your answers to part (a). (2 marks)

Question 3 **(4 marks)**

Consider the diagram below.



(a) Determine the gradient of the line AC. (2 marks)

(b) The line AB is perpendicular to the line AC at the point A. Determine the value of θ and the gradient of the line AB. (2 marks)