Christ Church Grammar School

2020
TEST 1

MATHEMATICS METHODS Year 11

Section Two:
Calculator-assumed

Your name _____

Teacher name _____

Time and marks available for this section

Reading time before commencing work:	3 minutes
Working time for this section:	30 minutes
Marks available:	25 marks

Materials required/recommended for this section

To be provided by the supervisor
This Question/Answer Booklet
Formula Sheet (retained from Section One)

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

Special items: drawing instruments, templates, and up to three calculators approved for use in the WACE examinations

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.

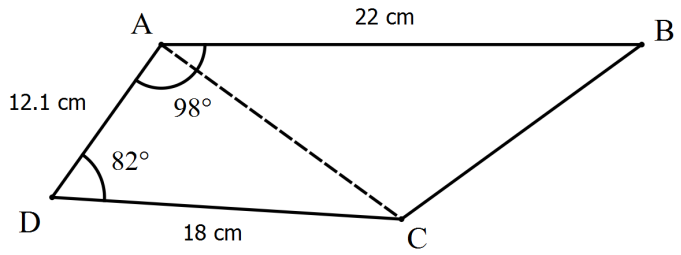
6. **Show all your working clearly**. Your working should be in sufficient detail to allow your answers to be checked readily and for marks to be awarded for reasoning. Incorrect answers given without supporting reasoning cannot be allocated any marks. For any question or part question worth more than 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.

See next page

Question 5 **(4 marks)**

Consider the diagram below, not drawn to scale.



Determine the length of BC, rounded to 2 decimal places.

See next page

Question 6 **(6 marks)**

A tower is situated due North of a point A and due West of a point B. From A, the angle of elevation of the top of the tower is $15°$. In addition, B is 73 metres from A and has a bearing of $052°T$ from A.

Determine, correct to 1 decimal place:

(a) the distance from A to the base of the tower, (2 marks)

(b) the height of the tower, (2 marks)

(c) the angle of elevation of the top of the tower from B. (2 marks)

See next page

Additional working space

Question number: _____

Additional working space

Question number: _____

Question 7 **(6 marks)**

An East Coast boat crew, preparing for the Head of the Yarra regatta, trained over a triangular course formed by three buoys. The distance between Buoy 1 and Buoy 2 was 2.8 km and the distance between Buoy 2 and Buoy 3 was 3.5 km. The angle made from Buoy 1 to Buoy 3 to Buoy 2 was $45°$.

(a) Determine the distance covered in one complete circuit of the shortest course. (3 marks)

(b) Find the largest area of the triangle formed by the circuit. (3 marks)

See next page

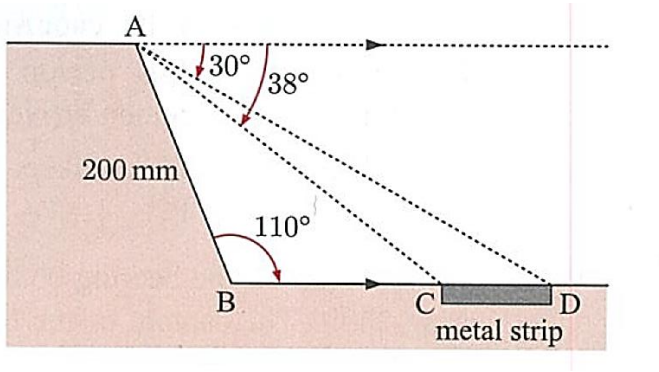
Question 8 **(5 marks)**

The area of a minor segment in a circle of radius 10 cm, is 30 cm^2.
Calculate the area of the minor sector and the length of the major arc.

See next page

Question 9 **(4 marks)**

A driverless bus requires special kerbing, which has a metal strip set into the concrete to control both the speed and direction of the bus. A cross section of the kerbing is shown below. Determine the width of the metal strip to the nearest mm.



End of questions