Christ Church Grammar School

2018
UNIT TEST 1

MATHEMATICS METHODS Year 11

Section Two:
Calculator-assumed

Student 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:	30 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. Write your answers in this Question/Answer Booklet.

2. Answer all questions.

3. **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.

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

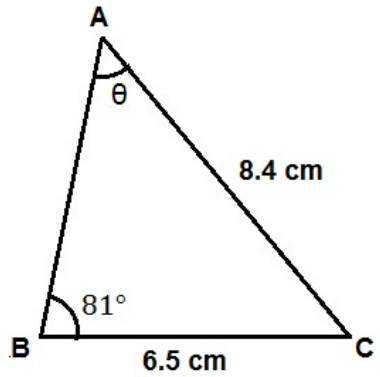
See next page

Additional working space

Question number:_____

Question 6 **(3 marks)**

Consider the triangle ABC in the diagram below:



Calculate θ correct to the nearest degree.

See next page

Question 7 **(3 marks)**

An equilateral triangle has an area of $200\ cm^2$. What is the length of its side, correct to 1 decimal place?

Question 8 **(3 marks)**

A triangle has sides 12.5 cm, 19.8 cm, and 13.2 cm. Calculate the size of the smallest angle in the triangle, giving your answer in radians.

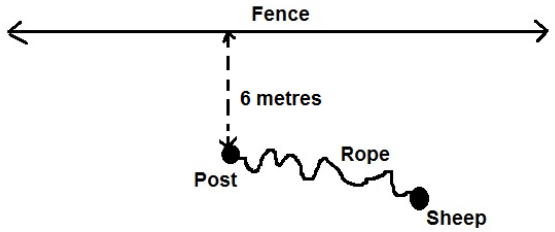
See next page

Additional working space

Question number:_____

Question 11 **(7 marks)**

A sheep is tethered to a post which is 6 metres from a long fence. The length of the rope is 9 metres.



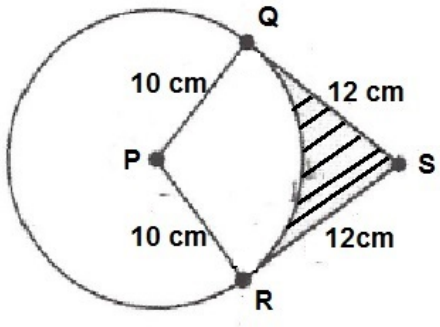
(a) Draw an appropriate diagram and shade in the area which the sheep can feed on. (2 marks)

(b) Calculate the value of the area, in m^2, which the sheep can feed on. (5 marks)

End of questions

Question 9 **(5 marks)**

The diagram below shows two tangent lines drawn from the Point S to the circle with centre P and radius 10 cm. The tangents touch the circle at points Q and R, consequently the angles PQS and SRP are right angles. Calculate the area of the shaded region.



See next page

Question 10 **(9 marks)**

Anish and Carl are hiking on their CCGS Venture walk. They both leave point O at the same time. Carl walks 4 km on the bearing 320^0, then a further 6 km on the bearing 025^0. Carl has now reached the campsite. Anish walks directly from O to the campsite.

(a) Sketch a clearly labelled diagram to illustrate this situation. (2 marks)

(b) How far does Anish hike? (3 marks)

See next page

Question 10 (continued)

(c) On what bearing should the hikers walk from the campsite to return to O? (4 marks)

See next page