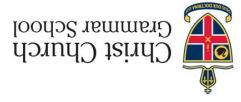
## 2018 UNIT TEST 6



to the supervisor before reading any further.

Important note to candidates

Special items: nil

## MATHEMATICS METHODS Year 11 Section One:

Section One: Calculator-free

ed), pencils (including coloured), sharpener, set, ruler, highlighters	To be provided by the candidate Standard items: pens (blue/black preferre correction fluid/tape, eras				
for this section	Materials required/recommended To be provided by the supervisor This Question/Answer Booklet Formula Sheet				
	Time and marks available for this Reading time before commencing work: Working time for this section:				
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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

## MATHEMATICS METHODS Year 11

## Instructions to candidates

- 1. Write your answers in this Question/Answer Booklet.
- 2. Answer all questions.
- 3. You must be careful to confine your response to the specific question asked and to follow any instructions that are specific to a particular question.

2

- 4. 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.
- 5. 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.
- 6. It is recommended that **you do not use pencil**, except in diagrams.

(3 marks)		(a) The equation of the curve.	)			
		Calculate the following:	)			
$\xi_{x} - \xi = (x)^{1/2}$ sed bo	ns (2,8) tnic	A curve $y = f(x)$ passes through the po	1			Question number:
(4 marks)		∫uestion 1	)			Additional working space
MATHEMATICS METHODS Year 11	ε	CALCULATOR-FREE	) II	MATHEMATICS METHODS Year	9	CALCULATOR-FREE

(b) The value of y when x = -1.

(j mark)

Question 2 (6 marks)

4

 $S_n$ , the sum of the first n terms of an arithmetic sequence, is given by:

$$S_n = 17n - 3n^2$$

(a) Determine the sum of the first 10 terms of the arithmetic sequence. (1 mark)

(b) Show that the first and second terms of the arithmetic sequence are 14 and 8 respectively. (3 marks)

(c) Give a simplified expression, in terms of n, for the  $n^{th}$  term of the arithmetic sequence. (2 marks)

Question 3 (5 marks)

5

Two particles A and B are moving along a straight path so that their displacements  $x_A$  and  $x_B$  metres relative to the origin O at time t seconds ( $t \ge 0$ ) are given by  $x_A = 3t^2 + 5t - 10$  and  $x_B = -2t^2 + 15t + 5$  respectively. Calculate the speeds of the two particles at the instant they collide.