Cambridge Assessment



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Cambridge IGCSE [®]	50	14. CO
CANDIDATE NAME		m
CENTRE NUMBER	CANDIDATE NUMBER	
CAMBRIDGE INTERNATIONAL MAT	HEMATICS 0607/05	
Paper 5 Investigation (Core)	For examination from 2020	

SPECIMEN PAPER

1 hour 10 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer all questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided. •
- Do not use an erasable pen or correction fluid.
- Do not write on any bar codes.
- You should use a graphic display calculator where appropriate.
- You must show all necessary working clearly, including sketches, to gain full marks for correct methods.
- In this paper you will be awarded marks for providing full reasons, examples and steps in your working • to communicate your mathematics clearly and precisely.

INFORMATION

- The total mark for this paper is 36.
- The number of marks for each question or part question is shown in brackets [].

Answer **all** the questions.

INVESTIGATION SUMS OF CONSECUTIVE INTEGERS

www.mymathscloud.com This investigation looks at the results when the terms of a sequence of consecutive positive integers are added together.

1 Here are four sequences of consecutive positive integers.

The sequence	5, 6, 7, 8, 9, 10, 11	has	7 terms.	The median (the middle term) is 8.
The sequence	7, 8	has only	2 terms.	The median is 7.5.
The sequence	20, 21, 22, 23, 24, 25	has	6 terms.	The median is 22.5.
The sequence	20, 21, 22,, 40	has	21 terms.	The median is 30.
For a sequence	of consecutive integers	,		

(a) give an example to show that the number of terms is calculated using the rule

last term - first term + 1

[1]

(b) describe how to calculate the median using only the first term and the last term.

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	 	 	 •••••	 		•••••	 •••••	 •••••		•••••	 	 	 	 	 [2]

2

- MMM.Mymathscioud.com Number Sum of all the terms Sequence Median of terms 7 6 3, 4, 5, 6, 7, 8, 9 7,8 2 7.5 20, 21, 22,, 40 30 630 21 5, 6, 7 18 8 2, 3, 4, 5, 6, 7, 8, 9 6 4.5 27 5 7 [9]
- (b) Explain how to calculate the sum of all the terms using only the number of terms and the median.[1] (c) What is always true about the number of terms when the median is an integer?[1] (d) What is always true about the median when the number of terms is even?[1]

(a) Complete the table of sequences of consecutive positive integers. 2

Use your answer to question 2(b) to h consecutive positive integers.	4 nelp you con	mplete the table of seque	hun myn	ATTA ASTA
Sequence	Number of terms	Median	Sum	-UU.COL
		5	15	<i>'n</i>
	4		34	
			49	[

[7]

Use your answers to **question 1** and **question 2(b)** to help you find the sum of this sequence. 4

15, 16, 17,, 985.

......[5]

5 Sequences have 2 or more terms.

Find all the sequences of consecutive positive integers that have a sum of 77.



[4]

MMM. MYMäthscioud.com (a) Use the factors of 16 to show why the sum of a sequence of consecutive positive integration. 6 equal 16.

- [3]
- (b) Find a number larger than 20 that cannot be written as the sum of consecutive positive integers.

[2]

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