Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2800503385

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/53**

Paper 5 (Core) **May/June 2016**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Graphics Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
You may use an HB pencil for any diagrams or graphs.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
You must show all relevant working to gain full marks for correct methods, including sketches.
In this paper you will also be assessed on your ability to provide full reasons and communicate your mathematics clearly and precisely.
At the end of the examination, fasten all your work securely together.
The total number of marks for this paper is 24.

This document consists of **8** printed pages.

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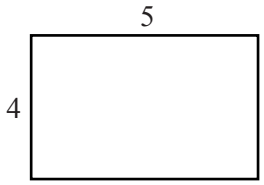
Answer **all** the questions.

INVESTIGATION **AREAS & PERIMETERS**

This investigation looks at the connection between the area and the perimeter of a rectangle.

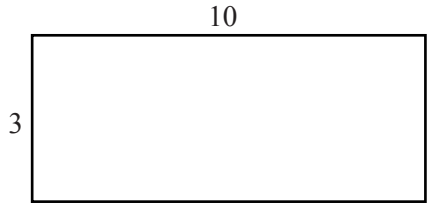
All diagrams are not to scale.
The sides of all rectangles are whole numbers.

1



The area of this 4 by 5 rectangle is 20.

(a)



Find the area of this rectangle.

.....

Some rectangles have area 4.
There are three ways to calculate their area.

Area 4
1 × 4
2 × 2
4 × 1

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(b) Some rectangles have area 6.
There are four ways to calculate their area.

Complete the table below to show all four ways.
The first one has been done for you.

Area 6
1 × 6
..... × .....
..... × .....
..... × .....

(c) Some rectangles have the same area.

(i) There are **exactly two** ways to calculate their area.

Complete the table when this area is a number between 6 and 15.

Area .....
..... × .....
..... × .....

(ii) There are **exactly three** ways to calculate their area.

Complete the table when this area is a number between 6 and 15.

Area .....
..... × .....
..... × .....
..... × .....

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(iii) There are **more than four** ways to calculate their area.

Complete the table when the area is a number between 6 and 15.
You may not need all the lines.

Area .....
..... × .....
..... × .....
..... × .....
..... × .....
..... × .....
..... × .....
..... × .....
..... × .....

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2 Some rectangles have the same area.
This area is between 1 and 20.

(a) (i) List the areas that can be calculated in **exactly two** ways.

.....

(ii) Write down the mathematical name for the numbers in your answer to **part (a)(i)**.

.....

(b) (i) List the areas that can be calculated in an **odd** number of ways.

.....

(ii) Write down the mathematical name for the numbers in your answer to **part (b)(i)**.

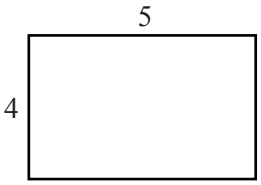
.....

3 Some rectangles have the same area.
This area is between 150 and 200.

Find an area that can be calculated in an **odd** number of ways.

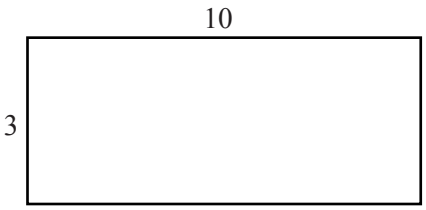
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4

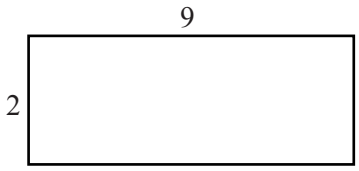


The perimeter of this 4 by 5 rectangle is 18.

Find the perimeter of each of these rectangles.



.....



.....

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5 The width of a rectangle is 3.
Its area and its perimeter have the same value.

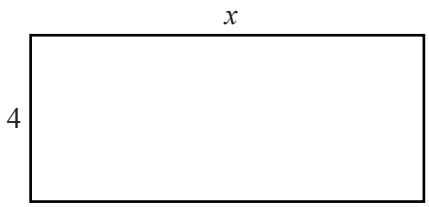
(a) Find its length.

.....

(b) Write down its perimeter.

.....

6



(a) Write down an expression for the area of this rectangle.

.....

(b) Write down an expression for the perimeter of this rectangle.

.....

(c) The area and the perimeter have the same value.

Write down an equation and solve it to find x.

Question 7 is printed on the next page.

7 A rectangle has width 2 and length x.

Show that this rectangle cannot have the same value for its area as its perimeter.

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