UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

5862600330

MATHEMATICS **0580/11, 0581/11**

Paper 1 (Core) **May/June 2009**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic Calculator
Geometrical Instruments
Mathematical tables (optional)
Tracing paper (optional)

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.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 56.

This document consists of **11** printed pages and **1** blank page.

1 $\geqslant$ $<$ $>$ $=$ $\leqslant$

Choose one of the above symbols to make a correct statement in the answer space.

For Examiner's Use

Answer 0.4 ..... $\frac{4}{9}$ [1]

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2 **(a)** Calculate $\frac{0.0763}{1.85 + 4.7 \times 8}$.

Answer(a) ..... [1]

(b) Write 0.0763 in standard form.

Answer(b) ..... [1]

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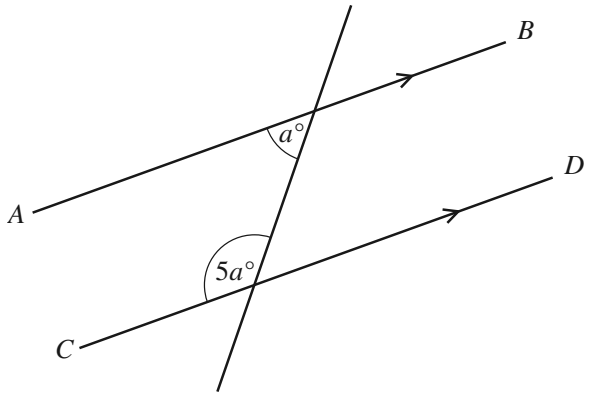
3 How many glasses, each holding 200 cm^3, can be filled completely from a full 4.5 litre bottle of water?

Answer ..... [2]

For Examiner's Use

4 In the diagram AB is parallel to CD.

Calculate the value of a.



NOT TO SCALE

Answer $a =$ ..... [2]

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5 Hakim and Bashira measure their heights.
Hakim's height is 157 cm and Bashira's height is 163 cm, both correct to the nearest centimetre.

Find the greatest possible difference between their heights.

Answer ..... cm [2]

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6 **(a)** Write down the gradient of the line $y = 3x - 4$.

Answer(a) ..... [1]

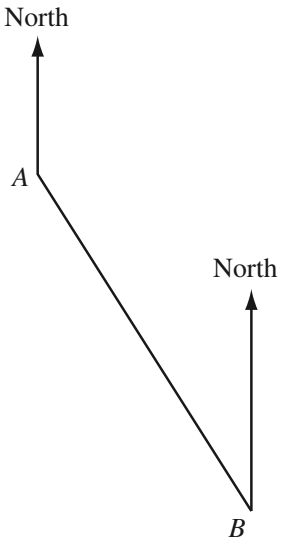
(b) Write down the equation of a line through (0, 0) parallel to $y = 3x - 4$.

Answer(b) ..... [1]

For Examiner's Use

7 A and B are two points marked on a map.

By measuring a suitable angle, find the bearing of A from B.



Answer ..... [2]

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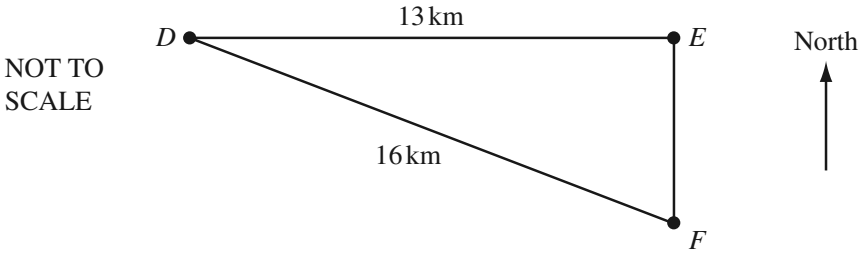
8 Town E is 13 kilometres due east of D.
Town F is due south of E, and $DF = 16$ kilometres.

Calculate the distance from E to F.



Answer ..... km [2]

For Examiner's Use

9 In 2007 Klaus paid 350 euros (€) for a flight from Berlin to Nairobi.

The return flight from Nairobi to Berlin cost him 30 700 Kenyan Shillings (KES).

The exchange rate at the time of the return flight was €1 = 79.6 KES.

Calculate the difference, in euros, between the costs of the two flights.
Give your answer correct to 2 decimal places.

Answer € ..... [2]

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10 **(a)** Expand and simplify $5(3c - 4d) - 8c$.

Answer(a) ..... [2]

(b) Factorise $pq - q^2$.

Answer(b) ..... [1]

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11 **(a)** Find the lowest common multiple of 7 and 9.

Answer(a) ..... [1]

(b) Without using a calculator, work out $\frac{8}{9} \quad \frac{5}{7}$, leaving your answer as a fraction.

You must show all your working.

Answer(b) ..... [2]

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12 $z = 2x - y$

For Examiner's Use

(a) Find z when $x = -3$ and $y = 7$.

Answer(a) $z =$ ..... [1]

(b) Make x the subject of the formula.

Answer(b) $x =$ ..... [2]

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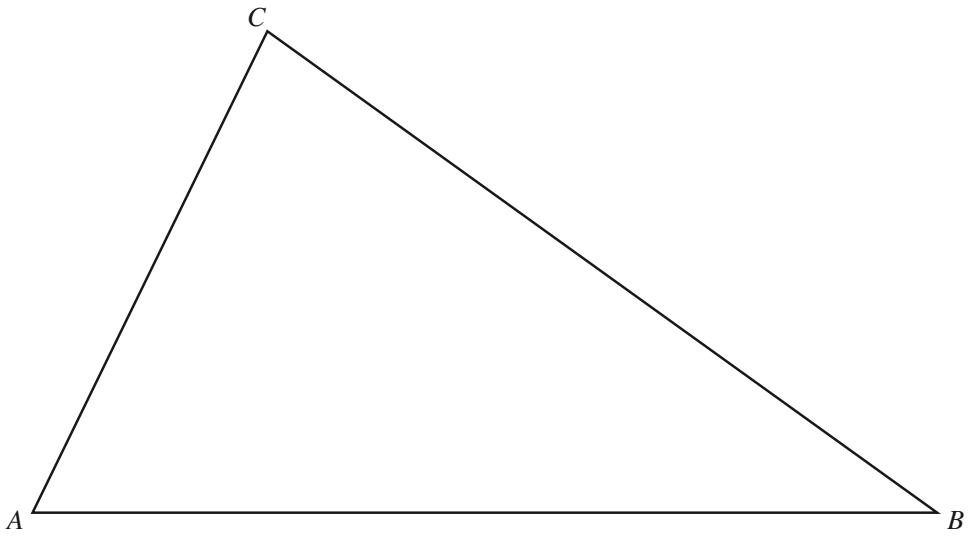
13 The diagram shows an accurate drawing of a triangular field.
1 centimetre represents 15 metres.
Florentina walks along a straight path from A to the side BC.
The path is always the same distance from AB and AC.



(a) **Using a straight edge and compasses only**, construct the line of the path.
You must show your construction arcs clearly. [2]

(b) The path meets BC at D.
How far, in metres, is Florentina from B when she reaches D?

Answer(b) ..... m [1]

For Examiner's Use

14 x is an integer between 60 and 90.

Write down the value of x when it is

(a) an odd square number,

Answer(a) $x =$ ..... [1]

(b) 4^3,

Answer(b) $x =$ ..... [1]

(c) a multiple of 29,

Answer(c) $x =$ ..... [1]

(d) a prime factor of 146.

Answer(d) $x =$ ..... [1]

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15 Simplify

(a) $3p \times 5p^3$,

Answer(a) ..... [2]

(b) $24q^2 \div 8q^3$.

Answer(b) ..... [2]

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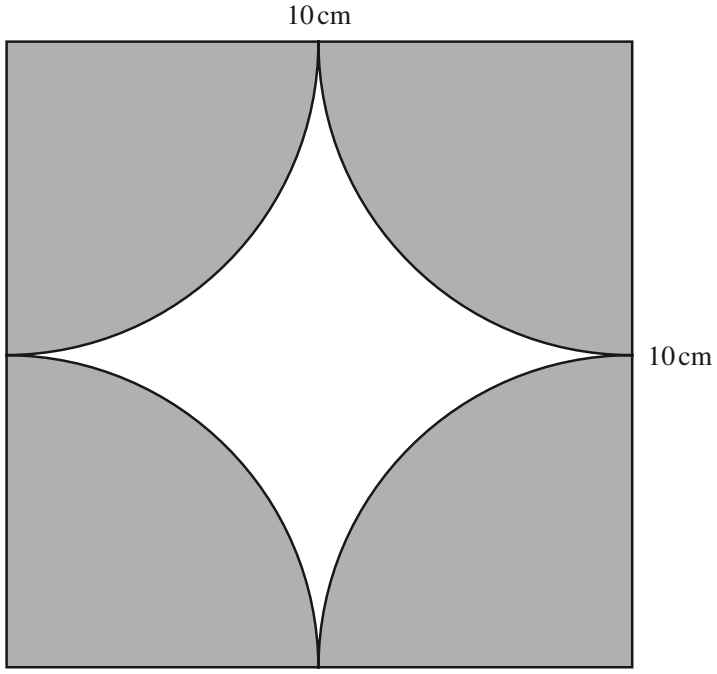
16 The diagram shows a square tile of side 10 centimetres with 4 identical quarter circles shaded.

For Examiner's Use

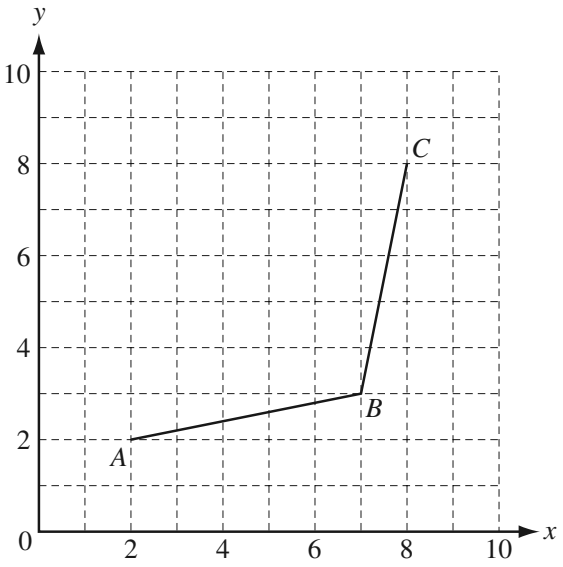


Calculate the area of the **unshaded** region.

Answer ..... cm^2 [4]

17

For Examiner's Use



Points A, B and C are shown on the grid.

(a) Plot the point D on the grid above so that $ABCD$ is a rhombus. [1]

(b) Write $\overrightarrow{BD}$ as a column vector.

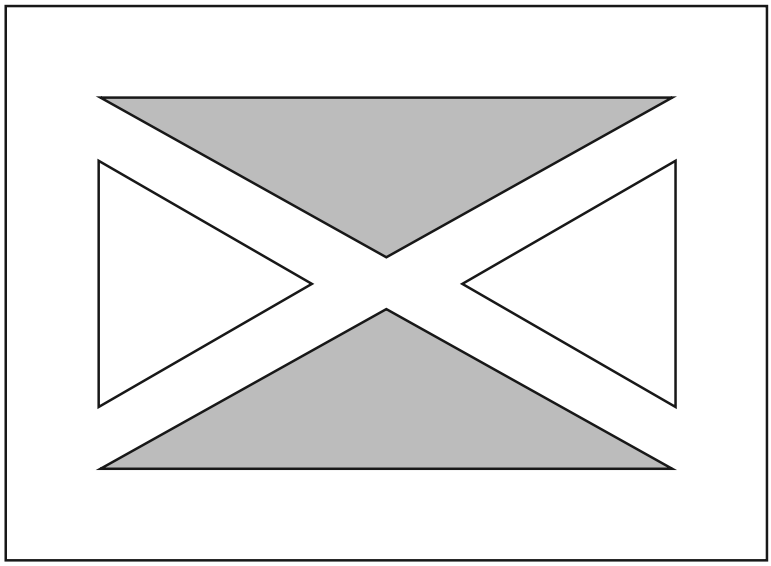
Answer(b) $\overrightarrow{BD} = \begin{pmatrix} \\ \end{pmatrix}$ [2]

(c) M is the mid-point of AC.
Write $\overrightarrow{AM}$ as a column vector.

Answer(c) $\overrightarrow{AM} = \begin{pmatrix} \\ \end{pmatrix}$ [1]

18 The plan of a rectangular garden with 4 triangular flowerbeds is shown in the diagram.

For Examiner's Use



(a) Write down the name of the special triangles that are

(i) shaded,

Answer(a)(i) ..... [1]

(ii) unshaded.

Answer(a)(ii) ..... [1]

(b) State the order of rotational symmetry of the plan.

Answer(b) ..... [1]

(c) Draw the lines of symmetry on the plan. [2]

For Examiner's Use

19 A school has 350 students.

(a) On the school sports day 96% of the students were present.

Calculate how many students were **absent**.

Answer(a) ..... [2]

(b) The table shows the number of students attending school in one week.

Monday	Tuesday	Wednesday	Thursday	Friday
334	329	348	341	323

For these values,

(i) calculate the mean,

Answer(b)(i) ..... [2]

(ii) find the median,

Answer(b)(ii) ..... [1]

(iii) find the range.

Answer(b)(iii) ..... [1]

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