UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

MATHEMATICS **0580/11**

Paper 1 (Core) **May/June 2011**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Mathematical tables (optional)
Geometrical instruments
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 **10** printed pages and **2** blank pages.

For Examiner's Use

1 A concert hall has 1540 seats.

Calculate the number of people in the hall when 55% of the seats are occupied.

Answer ..... [1]

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2 **(a)** Write down in figures the number twenty thousand three hundred and seventy six.

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

(b) Write your answer to **part (a)** correct to the nearest hundred.

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

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3 For an equilateral triangle, write down

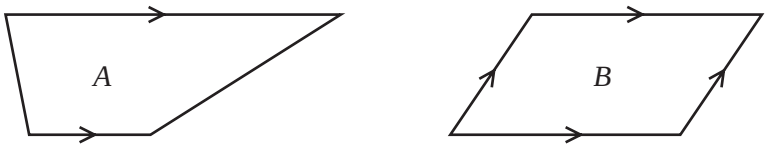
(a) the number of lines of symmetry,

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

(b) the order of rotational symmetry.

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

4



Write down the geometrical name for

(a) shape *A*, *Answer(a)* ..... [1]

(b) shape *B*. *Answer(b)* ..... [1]

For Examiner's Use

5 Mark and Naomi share \$600 in the ratio Mark : Naomi = 5 : 1.

Calculate how much money Naomi receives.

Answer \$ ..... [2]

---

6 Calculate the area of a circle with radius 6.28 centimetres.

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

---

7 The scale on a map is 1 : 20 000.

Calculate the actual distance between two points which are 2.7 cm apart on the map.
Give your answer in kilometres.

Answer ..... km [2]

---

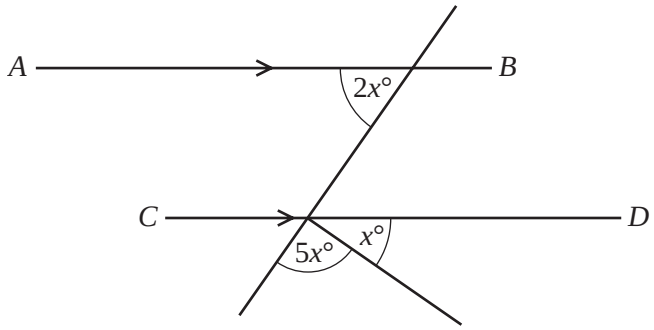
8 **(a)** Find m when $4^m \times 4^2 = 4^{12}$.

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

(b) Find p when $6^p \div 6^7 = 6^2$.

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

9



NOT TO SCALE

AB is parallel to *CD*.
Calculate the value of *x*.

Answer x = ... [3]

---

10 Solve the simultaneous equations.

$$3x + y = 30$$
$$2x - 3y = 53$$

Answer x = ...

y = ... [3]

---

11 **Without using your calculator**, and leaving your answer as a fraction, work out

$$2\frac{1}{6} - \frac{7}{12}.$$

You must show all your working.

Answer ..... [3]

For Examiner's Use

12 **(a)** Write 1738.279 correct to 1 decimal place.

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

(b) Write 28 700 in standard form.

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

(c) The mass of a ten-pin bowling ball is 7 kg to the nearest kilogram.

Write down the lower bound of the mass of the ball.

Answer(c) ..... kg [1]

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13 Paulo invests $3000 at a rate of 4% per year **compound** interest.

Calculate the **total** amount Paulo has after 2 years.
Give your answer correct to the nearest dollar.

Answer $ ..... [3]

---

14 A train leaves Barcelona at 21 28 and takes 10 hours and 33 minutes to reach Paris.

(a) Calculate the time the next day when the train arrives in Paris.

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

(b) The distance from Barcelona to Paris is 827 km.

Calculate the average speed of the train in kilometres per hour.

Answer(b) ..... km/h [3]

[Turn over

For Examiner's Use

15 **(a)** The table shows part of a railway timetable.

Peartree Station	arrival time	12 58	13 56	14 54	15 52
	departure time	13 07	14 05	15 03	16 01

(i) Each train waits the same number of minutes at Peartree Station.

Write down how many minutes each train waits.

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

(ii) Janine is at Peartree Station at 3 pm.

At what time does the next train depart?

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

(b) The average temperature each month in Moscow and Helsinki is recorded.
The table shows this information from January to June.

	January	February	March	April	May	June
Temperature in Moscow (°C)	16	14	8	1	8	11
Temperature in Helsinki (°C)	9	10	7	1	4	10

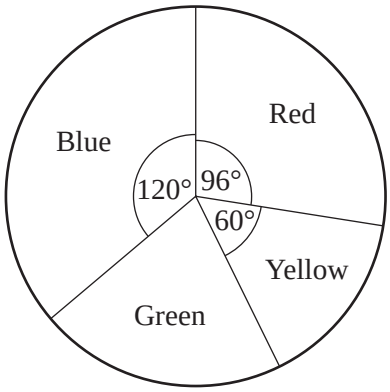
(i) Find the difference in temperature between Moscow and Helsinki in **January**.

Answer(b)(i) ..... °C [1]

(ii) Find the increase in temperature in Helsinki from March to June.

Answer(b)(ii) ..... °C [1]

16



NOT TO SCALE

For Examiner's Use

In a survey a number of people chose their favourite colour.

The results are shown in the pie chart.

(a) **Calculate** the size of the sector angle for green.

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

(b) The number of people who chose red is 16.

Calculate the number who chose yellow.

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

(c) Calculate the total number of people in the survey.

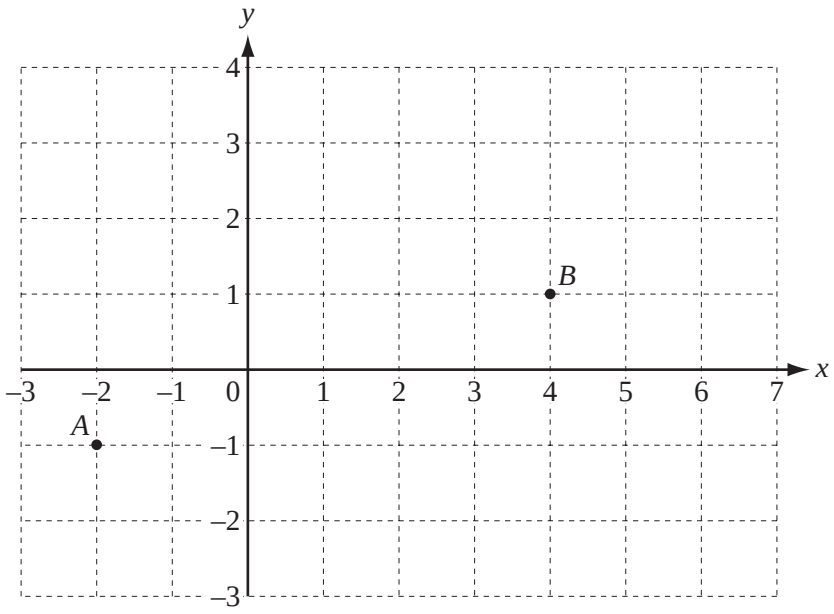
Answer(c) ..... [1]

(d) Write down the fraction who chose red.

Answer(d) ..... [1]

[Turn over

17



(a) Write down the vector $\overrightarrow{AB}$.

Answer(a) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) $\overrightarrow{BC} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$

Mark the point C on the grid. [1]

(c) Work out

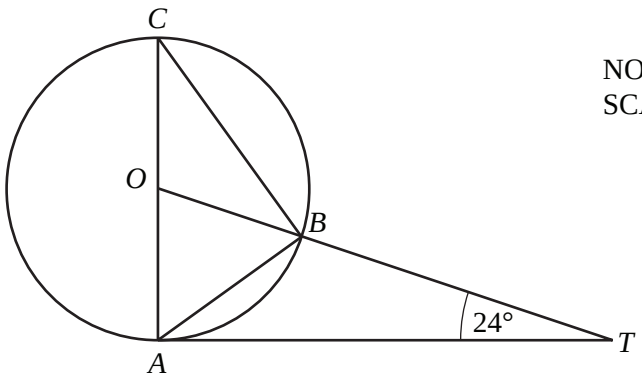
(i) $\begin{pmatrix} 3 \\ 1 \end{pmatrix} + \begin{pmatrix} 7 \\ 4 \end{pmatrix}$,

Answer(c)(i) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(ii) $4 \times \begin{pmatrix} 3 \\ 1 \end{pmatrix}$.

Answer(c)(ii) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

18



NOT TO SCALE

For Examiner's Use

A, *B* and *C* are points on a circle, centre *O*.
TA is a tangent to the circle at *A* and *OBT* is a straight line.
AC is a diameter and angle *OTA* = 24°.

Calculate

(a) angle *AOT*,

Answer(a) Angle *AOT* = ... [2]

(b) angle *BOC*,

Answer(b) Angle *BOC* = ... [1]

(c) angle *OCB*.

Answer(c) Angle *OCB* = ... [1]

[Turn over

For Examiner's Use

19 Piet, Rob and Sam collect model aeroplanes.
Piet has x aeroplanes.
Rob has 7 more aeroplanes than Piet.
Sam has three times as many aeroplanes as Piet.

(a) Write down an expression, in terms of x, for

(i) the number of aeroplanes Rob has,

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

(ii) the number of aeroplanes Sam has.

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

(b) The total number of aeroplanes is 32.

(i) Use the information in **part (a)** to write down an equation in x.

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

(ii) Solve your equation.

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

(c) Write down the number of aeroplanes Rob has.

Answer(c) ..... [1]

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