UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

7675095749

MATHEMATICS **0580/01, 0581/01**

Paper 1 (Core) **October/November 2007**

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.

For Examiner's Use

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This document consists of **10** printed pages and **2** blank pages.

For Examiner's Use

1 On a winter's day in Vienna the maximum temperature was –2°C.
The minimum temperature was 11°C lower than this.
Write down the minimum temperature.

Answer ..... °C [1]

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2 Chris and Roberto share $35 in the ratio 5:2.
Calculate how much Roberto receives.

Answer $ ..... [2]

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3 Solve the equation $1 - 2x = x + 4$.

Answer $x =$ ..... [2]

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4 In 2005, a toy cost 52.50 reals in Brazil.
In Argentina, 1 peso = 0.875 reals.
Work out the cost of the toy in pesos.

Answer ..... pesos [2]

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5 Factorise completely $4xy - 2x$.

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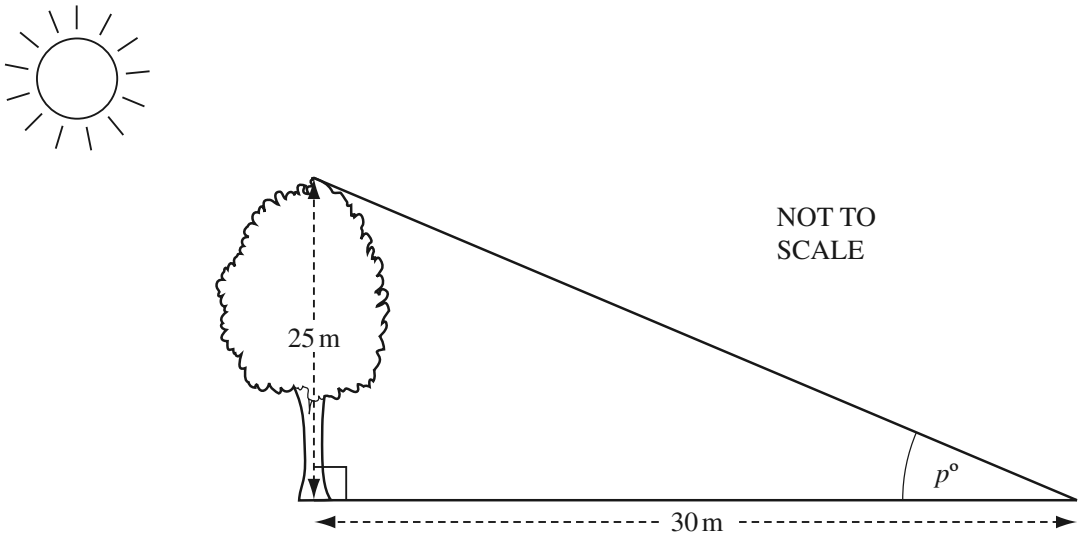
Answer ..... [2]

6



The height of a tree is 25 metres.
The shadow of the tree has a length of 30 metres.
Calculate the size of the angle marked $p°$ in the diagram.

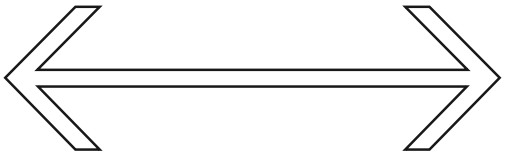
Answer $p =$ ..... [2]

7 The distance, d kilometres, between Windhoek and Cape Town is 1300 km, correct to the nearest 100 kilometres.
Complete the statement about the value of d.

Answer ..... $\leqslant d <$ ..... [2]

[Turn over

8 **(a)**



Draw all the lines of symmetry on the shape above. [1]

(b) A quadrilateral has rotational symmetry of order 2 and no lines of symmetry.
Write down the geometrical name of this shape.

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

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9 **(a)** Write in the missing number. $\frac{5}{6} \quad \frac{\ldots}{18}$

[1]

(b) Without using your calculator and writing down all your working, show that

$$1\frac{2}{9} \quad \frac{5}{6} \quad \frac{7}{18}.$$

Answer(b)

[2]

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10 Each interior angle of a regular polygon is 150°.

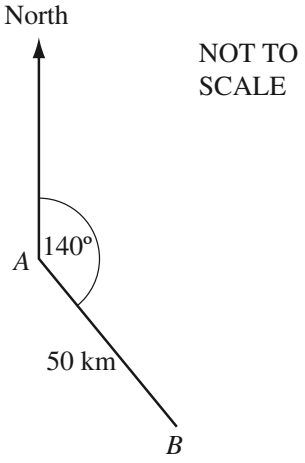
(a) Work out the size of each exterior angle.

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

(b) Work out the number of sides of this polygon.

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

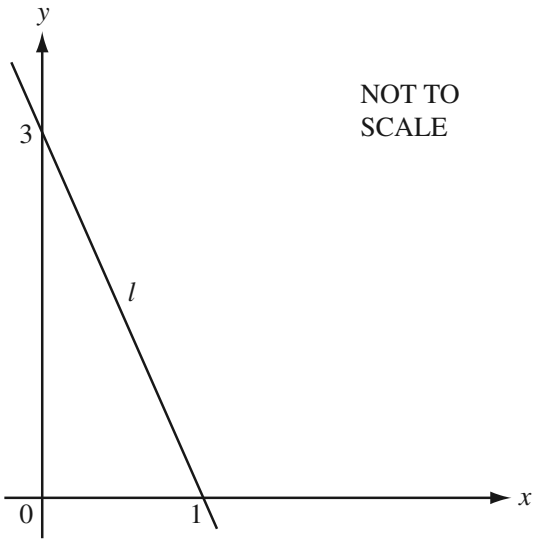
11



A ship travels 50 kilometres from A to B on a bearing of 140°, as shown in the diagram.
Calculate how far south B is from A.

Answer ..... km [3]

12



NOT TO SCALE

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A straight line, l, crosses the x-axis at (1, 0) and the y-axis at (0, 3).

(a) Find the gradient of the line l.

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

(b) Write down the equation of the line l, in the form $y = mx + c$.

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

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13 A school has 240 students.

(a) There are 131 girls.
What percentage of the students are girls?

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

(b) One day 6.25% of the 240 students are absent.
Work out the number of students who are absent.

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

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14 **(a)** Calculate the circumference of a circle of diameter 8 cm.

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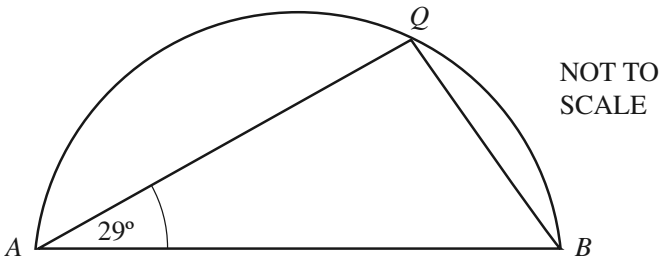
Answer(a) ..... cm [2]

(b)



AQB is a semi-circle.
Angle *QAB* = 29°.
Work out the size of angle *ABQ*.

Answer(b) Angle *ABQ* = ... [2]

---

15 Simplify

(a) a^0,

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

(b) $\left(x^3\right)^2$

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

(c) $\left(\frac{3}{x}\right)^2$.

Answer(c) ..... [2]

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16 **(a)** **(i)** Write 17 598 correct to 2 significant figures.

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

(ii) Write your answer to **part (a)(i)** in standard form.

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

(b) Write 5.649×10^{-2} as a decimal, correct to 3 decimal places.

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

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17 **(a)** Alex invests \$200 for 2 years at 4.05% per year **simple** interest.
Calculate how much **interest** Alex receives.

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

(b) Bobbie invests \$200 for 2 years at 4% per year **compound** interest.
Calculate how much **interest** Bobbie receives.
Give your answer to 2 decimal places.

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

18

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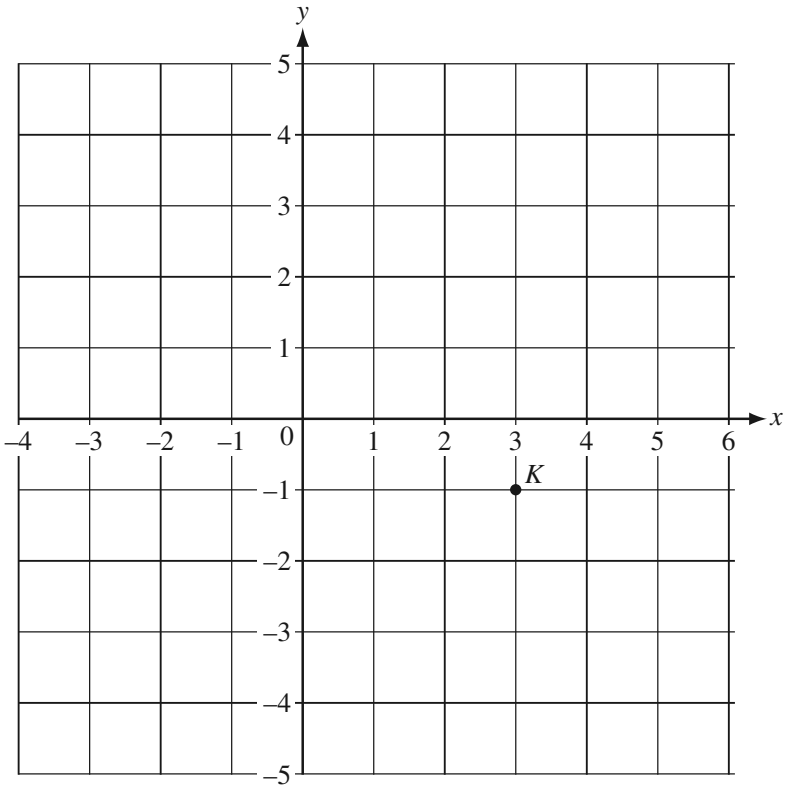

(a) $\overrightarrow{KL} = \begin{pmatrix} 3 \\ 3 \end{pmatrix}$. The point K is marked on the diagram.

(i) Draw $\overrightarrow{KL}$ on the diagram. [1]

(ii) Write down the co-ordinates of the point L.

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

(b) P is the point $(-3, -3)$.

$\overrightarrow{PR} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$ and $\overrightarrow{PS} = 2\overrightarrow{PR}$.

Find the co-ordinates of S.

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

Question 19 is printed on the next page.

19

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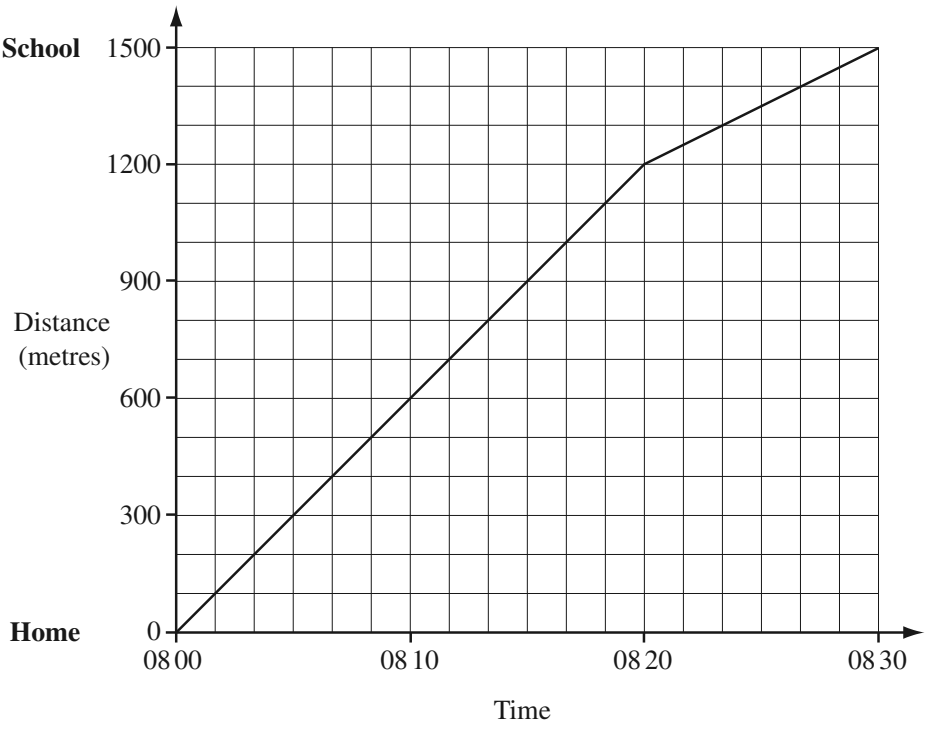

The travel graph shows Maria's walk to school one Monday morning.

(a) Calculate her speed during the first 20 minutes

(i) in metres / minute,

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

(ii) in kilometres / hour.

Answer(a)(ii) ..... km / h [2]

(b) Calculate the average speed of her walk from home to school in kilometres / hour.

Answer(b) ..... km / h [2]

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