UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

3349079136

MATHEMATICS **0580/13**

Paper 1 (Core) **October/November 2013**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
Geometrical instruments

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.

For Examiner's Use

1 The table shows the daily takings, correct to the nearest dollar, of a shop during one week.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Takings ($)	153	201	178	231	164	147	156

Find the range.

Answer $ ..... [1]

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2 Factorise.

$2a^2 - 5a$

Answer ..... [1]

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3 The table shows the average monthly temperatures in Ulaanbaatar, Mongolia.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°C)	–25	–30	–12	–2	6	13	17	10	7	0	–13	–22

By how many degrees does the temperature rise between March and July?

Answer ..... °C [1]

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4 Christa had a music lesson every week for one year.
Each of the 52 lessons lasted for 45 minutes.

Calculate the total time that Christa spent in music lessons.
Give your time in hours.

Answer ..... h [2]

For Examiner's Use

5 **(a)** Write 2563 correct to the nearest 100.

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

(b) Write 0.0584 correct to 2 significant figures.

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

6

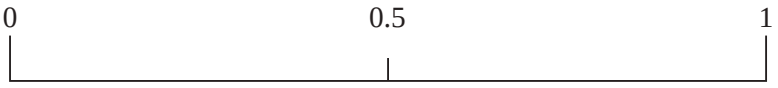
A B C D E F G H I J K

(a) A letter is chosen at random from the list above.

Write down, as a fraction, the probability that the letter has **no** curved parts.

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

(b) On the probability scale, mark an arrow to show this probability.



[1]

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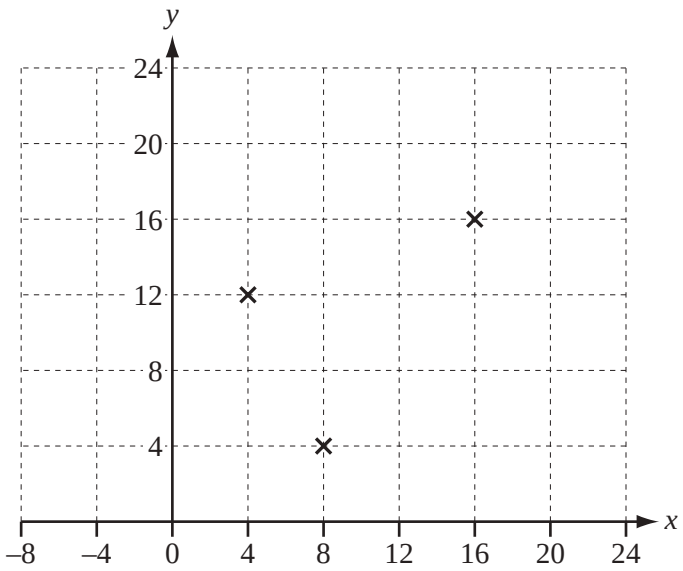
7 Three of the vertices of a parallelogram are at (4, 12), (8, 4) and (16, 16).



Write down the co-ordinates of two possible positions of the fourth vertex.

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

For Examiner's Use

8 **(a)** A train leaves Hamilton at 9.50 am and arrives in Wellington at 7.25 pm.

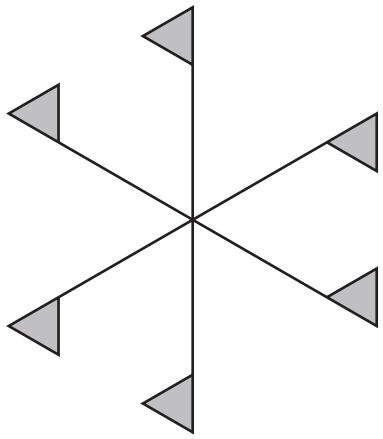
Work out, in hours and minutes, the time taken for this journey.

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

(b) Write 7.25 pm using the 24-hour clock.

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

9



For the diagram, write down

(a) the number of lines of symmetry,

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

(b) the order of rotational symmetry.

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

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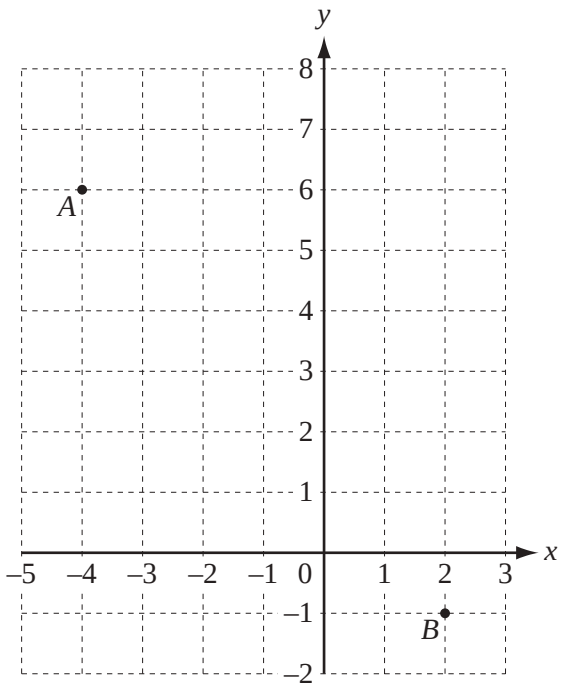
10 Write these numbers in order of size, starting with the smallest.

$$0.41 \qquad \frac{3}{7} \qquad \frac{9}{22} \qquad \frac{\pi}{7} \qquad 43\%$$

Answer ..... < ..... < ..... < ..... < ..... [2]

For Examiner's Use

11 The diagram shows two points, A and B.



Write as column vectors

(a) $\overrightarrow{AB}$,

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

(b) $3\overrightarrow{BA}$.

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

---

12 Write down the type of correlation you would expect when values for the following are plotted.

(a) Total amount of time spent training for long distance races and time taken to run a marathon.

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

(b) Total amount of time spent training for throwing the javelin and the distance the javelin is thrown.

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

13

Point *B* is 5.5 cm from point *A* on a bearing of 132°.

Draw accurately the line *AB*. [2]

---

14 Solve the equation.

$$4x + 3 = 10$$

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

---

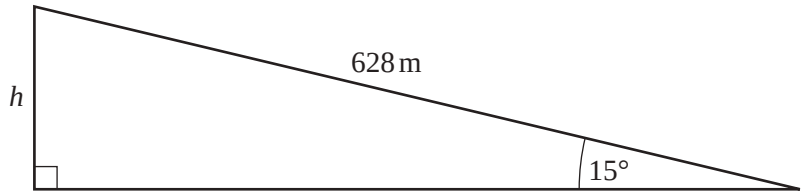
15 **Without using a calculator**, work out $3\frac{1}{7} - 1\frac{2}{5}$.

Give your answer as a fraction in its lowest terms.
You must show each step of your working.

Answer ..... [3]

For Examiner's Use

16

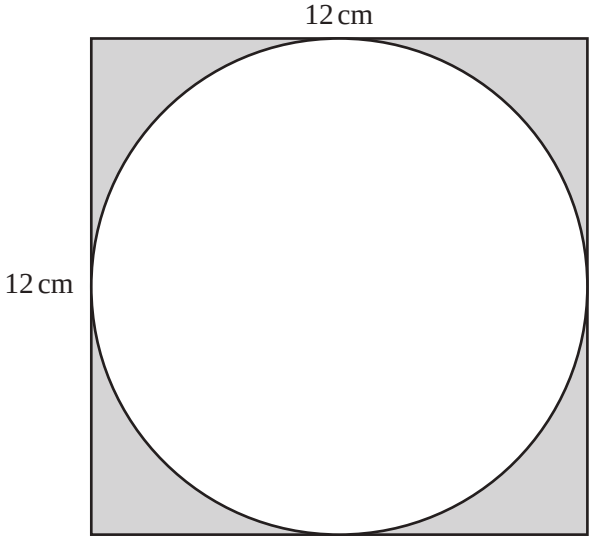


NOT TO SCALE

Calculate the length h.
Give your answer correct to 2 significant figures.

Answer $h =$ ..... m [3]

17



NOT TO SCALE

The diagram shows a circle inside a square of side 12 cm.
The circle touches each side of the square.

Calculate the area of the shaded part of the diagram.

Answer ..... cm^2 [3]

For Examiner's Use

18 Solve the simultaneous equations.

$$5x + 6y = 3$$
$$4x - 3y = 18$$

Answer $x =$ .....

$y =$ ..... [3]

---

19 Write the answer to the following calculations in standard form.

(a) $600 \div 8000$

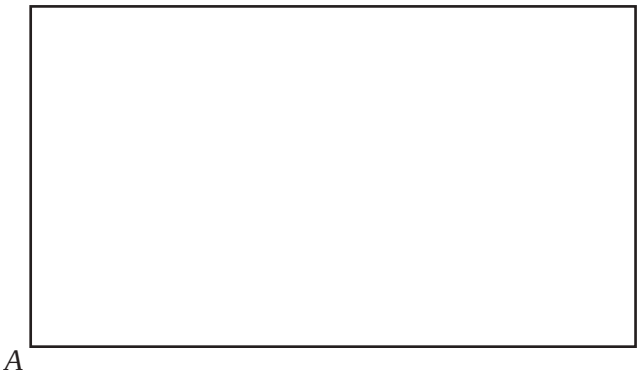
Answer(a) ..... [2]

(b) $10^8 - 7 \times 10^6$

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

20

For Examiner's Use



(a) Construct the locus of all the points which are 3 cm from vertex A **and** outside the rectangle. [2]

(b) Construct, **using a straight edge and compasses only**, one of the lines of symmetry of the rectangle. [2]

---

21 **(a)** Simplify.

$3x - 5y + 8x - 2y$

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

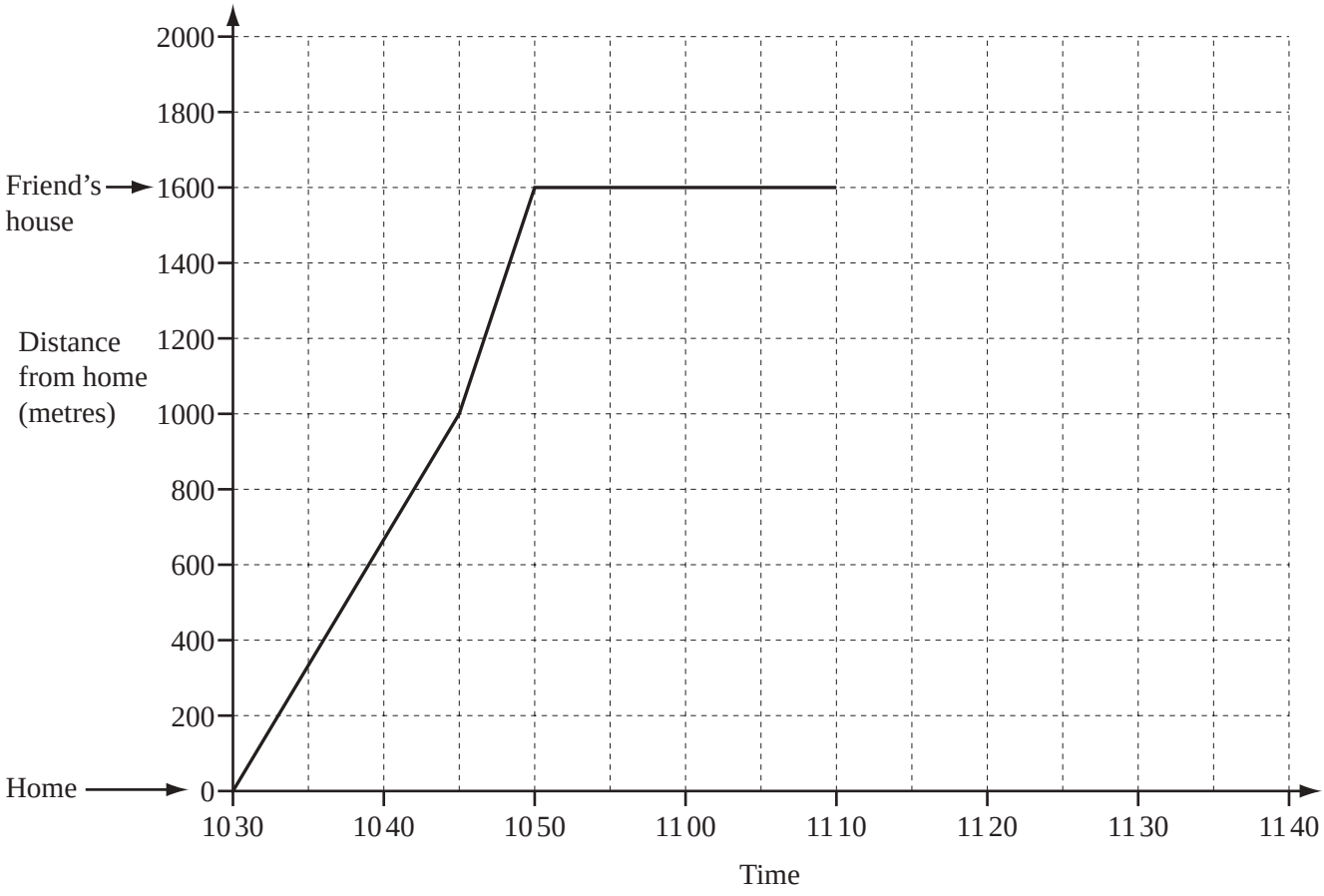
(b) Expand and simplify.

$4(2a - 3b) - 5(a - 2b)$

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

For Examiner's Use

22 The travel graph shows Natasha's visit to her friend's house.
She starts by walking and then runs.
She stays at her friend's house until 11 10 before returning home.



(a) (i) How far does Natasha **walk** on the journey to her friend's house?

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

(ii) Find Natasha's average speed, in metres per minute, on the journey to her friend's house.

Answer(a)(ii) ..... m/min [2]

(iii) How long does Natasha stay at her friend's house?

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

For Examiner's Use

(b) Natasha returns home at a constant speed of 64 metres per minute.

(i) Complete the travel graph. [2]

(ii) Write down the time she arrives home.

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

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