UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

2493042725

MATHEMATICS **0580/13**

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 **8** printed pages.

For Examiner's Use

1 **(a)** Write down ten thousand and seventy three in figures.

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

(b) Work out $13 + 5 \times 4 - 2$.
Write down all the steps of your working.

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

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2 Write down the next term in each sequence.

(a) 1, 2, 4, 8, 16, ... [1]

(b) 23, 19, 15, 11, 7, ... [1]

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3 Write down the time and date which is 90 hours after 20 30 on May 31st.

Answer Time .....

Date ..... [2]

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4 Factorise completely.

$2xy - 4yz$

Answer ..... [2]

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5 Insert $<$ or $>$ or $=$ in the spaces provided to make correct statements.

(a) $\frac{3}{11}$ ..... 0.273 [1]

(b) 1.1 ..... 111% [1]

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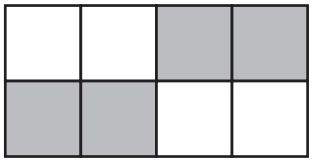
6 Make x the subject of the formula. $y = \frac{x}{3} + 5$

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

7



For the diagram, write down

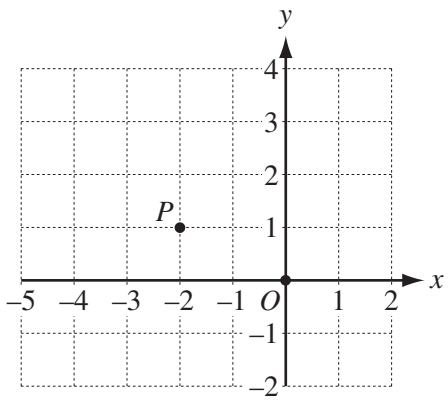
(a) the number of lines of symmetry,

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

(b) the order of rotational symmetry.

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

8



In the diagram O is the origin and P is the point (–2, 1).

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

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

(b) $\overrightarrow{PQ} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$

Mark the point Q on the diagram. [1]

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9 Using integers between 10 and 30, write down

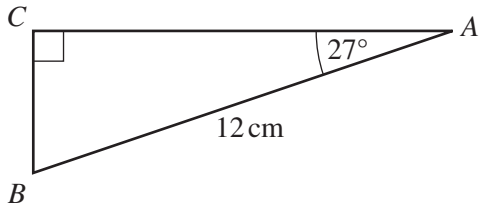
(a) an odd multiple of 7,

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

(b) a cube number.

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

10

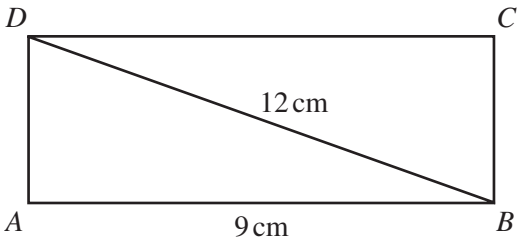


NOT TO SCALE

In triangle ABC, $AB = 12$ cm, angle $C = 90°$ and angle $A = 27°$.
Calculate the length of AC.

Answer AC = ... cm [2]

11



NOT TO SCALE

In the rectangle $ABCD$, $AB = 9$ cm and $BD = 12$ cm.
Calculate the length of the side BC.

Answer BC = ... cm [3]

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12 **(a)** Write 16 460 000 in standard form.

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

(b) Calculate $7.85 \div (2.366 \times 10^2)$, giving your answer in standard form.

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

For Examiner's Use

13 **(a)** Find the value of x when $\frac{18}{24} = \frac{27}{x}$.

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

(b) Show that $\frac{2}{3} \div 1\frac{1}{6} = \frac{4}{7}$.
Write down all the steps in your working.

Answer(b)

[2]

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14 **(a)** A drinking glass contains 55 cl of water.
Write 55 cl in litres.

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

(b) The mass of grain in a sack is 35 kg.
The grain is divided equally into 140 bags.

Calculate the mass of grain in each bag.
Give your answer in grams.

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

---

15 **(a)** Write 67.499 correct to the nearest integer.

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

(b) Write 0.003040506 correct to 3 significant figures.

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

(c) $d = 56.4$, correct to 1 decimal place.

Write down the lower bound of d.

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

For Examiner's Use

16 Solve the simultaneous equations.

$$x + 2y = 3$$
$$2x - 3y = 13$$

Answer $x =$ .....

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

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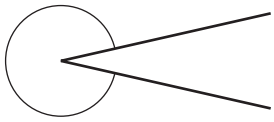
17 (a)



What type of angle is shown by the arc on the diagram?

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

(b) *ABCD* is a quadrilateral.

- *AB* is parallel to *DC*.
- *BC* is longer than *AD*.

(i) Draw a possible quadrilateral *ABCD*.

Answer(b)(i)

[1]

(ii) Write down the geometrical name for the quadrilateral *ABCD*.

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

For Examiner's Use

18 Eva invests \$120 at a rate of 3% per year **compound interest**.

Calculate the total amount Eva has after 2 years.
Give your answer correct to 2 decimal places.

Answer \$ ..... [3]

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19 At a ski resort the temperature, in °C, was measured every 4 hours during one day.

The results were –12°, –13°, –10°, 4°, 4°, –6°.

(a) Find the difference between the highest and the lowest of these temperatures.

Answer(a) ..... °C [1]

(b) Find

(i) the mean,

Answer(b)(i) ..... °C [2]

(ii) the median,

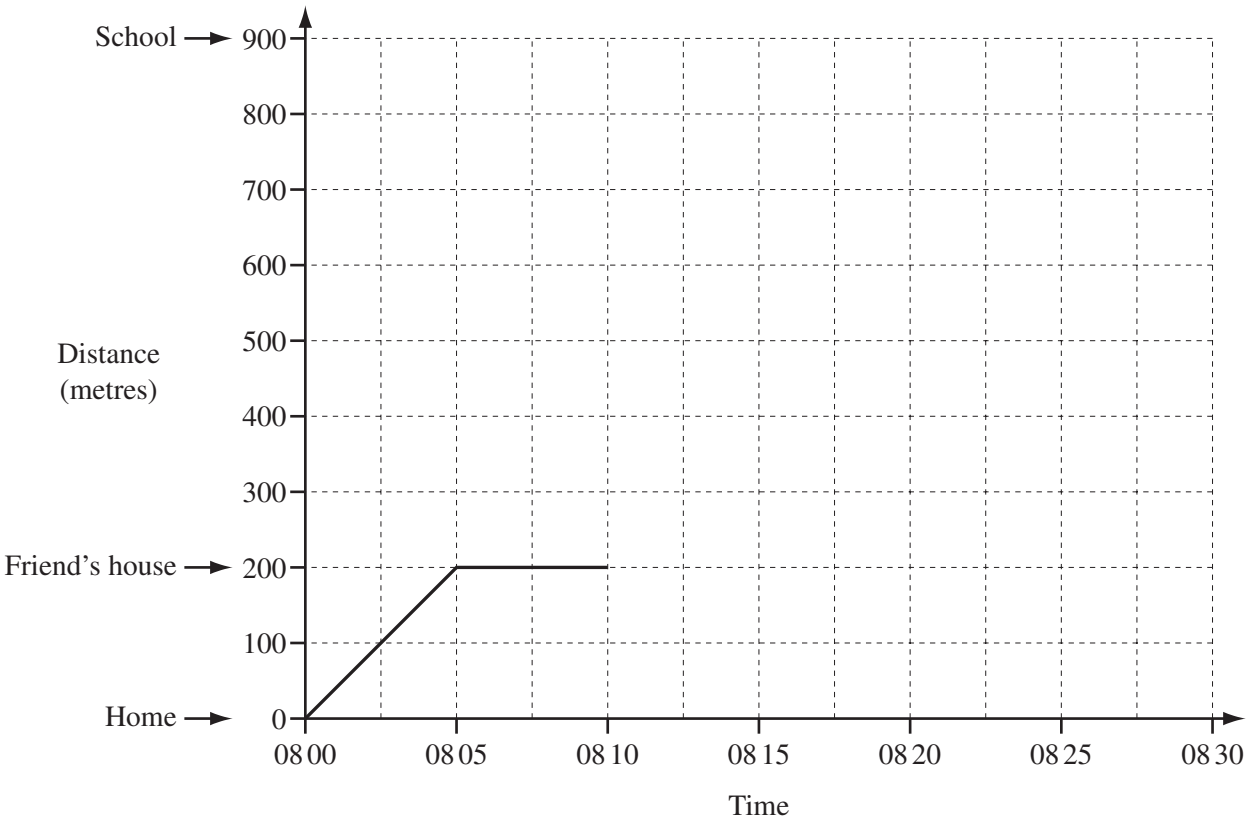
Answer(b)(ii) ..... °C [2]

(iii) the mode.

Answer(b)(iii) ..... °C [1]

Question 20 is printed on the next page.

20



The graph shows part of Ali's journey from home to his school.
The school is 900 m from his home.
He walks 200 m to his friend's house and waits there.
He then takes 20 minutes to walk with his friend to their school.

(a) Complete the travel graph showing Ali's journey. [1]

(b) How long does he wait at his friend's house?

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

(c) Calculate the average speed for Ali's complete journey from home to his school.
Give your answer in **kilometres per hour**.

Answer(c) ..... km/h [4]