Cambridge IGCSE

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

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|---|---|---|---|---|---|---|---|---|---|
| CANDIDATE NAME | | | | | | | | | |
| CENTRE NUMBER | | | | | | CANDIDATE NUMBER | | | | |

**MATHEMATICS** **0580/11**

Paper 1 (Core) **May/June 2017**

**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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, 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 $\pi$, 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.



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CAMBRIDGE International Examinations

**1** Write, in figures, the number seventy thousand and twenty.

View solution

..... [1]

**2** Write, as a decimal, the value of $5^{-3}$.

View solution

..... [1]

**3** The thickness of one sheet of paper is $8 \times 10^{-3}$ cm.

View solution

Work out the thickness of 250 sheets of paper.

..... cm [1]

**4** Simplify.

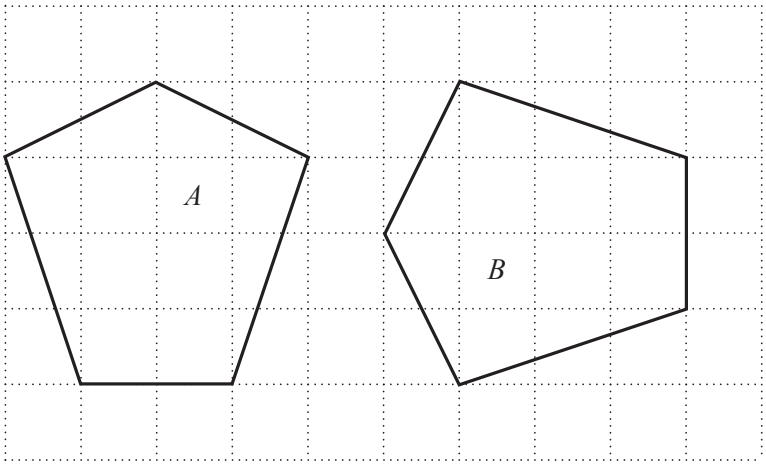
$(x^2)^5$

View solution

..... [1]

**5**

View solution




opposite congruent reflected translated

Choose the mathematical word from the list to complete this statement.

Pentagon $A$ is ..... to pentagon $B$. [1]

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**6** 31 33 35 37 39

From the list, write down a prime number.

View solution

..... [1]

**7** Write 23.4571 correct to

**(a)** 4 significant figures,

View solution

..... [1]

**(b)** the nearest 10.

View solution

..... [1]

**8** Factorise completely.

$12n^2 - 4mn$

View solution

..... [2]

**9** Find the highest common factor (HCF) of 126 and 150.

View solution

..... [2]

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**10** The table shows the temperatures in five places at 10 am one day in January.

| Place | Temperature (°C) |
|---|---|
| Helsinki | −7 |
| Chicago | −10 |
| London | 3 |
| Moscow | −4 |
| Bangkok | 26 |

**(a)** Which place was the coldest?

View solution

..... [1]

**(b)** At 2 pm the temperature in Helsinki had increased by 4 °C.

Write down the temperature in Helsinki at 2 pm.

View solution

.....°C [1]

**11** Expand the brackets and simplify.

$$7(2x+3y)-x(14-y)$$

View solution

..... [2]

**12** The mass, $m$ kilograms, of an elephant is 3570 kg, correct to the nearest 5 kg.

Complete this statement about the value of $m$.

View solution

..... $\leqslant m <$ ..... [2]

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**13** $\mathbf{a} = \begin{pmatrix} 5 \\ -1 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -3 \\ -4 \end{pmatrix}$

View solution

Write $\mathbf{a} + 2\mathbf{b}$ as a single vector.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

**14** Manuel changes 5000 Mexican Pesos to dollars.
He receives $336.

View solution

Complete this statement about the exchange rate.
Give your answer correct to 2 decimal places.

$1 = ..... Mexican Pesos [2]

**15** Maria asks 50 students in her school when their birthday is.
She records the information in the table.

| | Jan to Mar | Apr to Jun | Jul to Sep | Oct to Dec |
|---|---|---|---|---|
| Number of birthdays | 9 | 21 | 14 | 6 |

**(a)** Find the relative frequency of a student having a birthday in April, May or June.

View solution

..... [1]

**(b)** There are 750 students in the school.

View solution

Estimate the number of students who have a birthday in April, May or June.

..... [1]

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**16** Work out $\dfrac{\sqrt[3]{512}}{6^2}$.

View solution

Write your answer as a fraction in its lowest terms.

..... [2]

**17** $A = 4\pi r^2$

View solution

Make $r$ the subject of this formula.

$r =$ ..... [2]

**18** **(a)** Work out.

$3 + 2 \times -4$

View solution

..... [1]

**(b)** In each of these, insert one pair of brackets to make the statement correct.

View solution

**(i)** $3 \times 5 + 2 + 2 = 23$ [1]

**(ii)** $12 \div 4 + 2 = 2$ [1]

View solution

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

View solution

Write down all the steps of your working and give your answer as a mixed number in its simplest form.

..... [3]

**20** Solve the simultaneous equations.
You must show all your working.

View solution

$$5x-2y=24$$
$$7x+4y=-14$$

$x =$ .....

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

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**21** A cuboid has length 6 cm, width 5 cm and height 3 cm.

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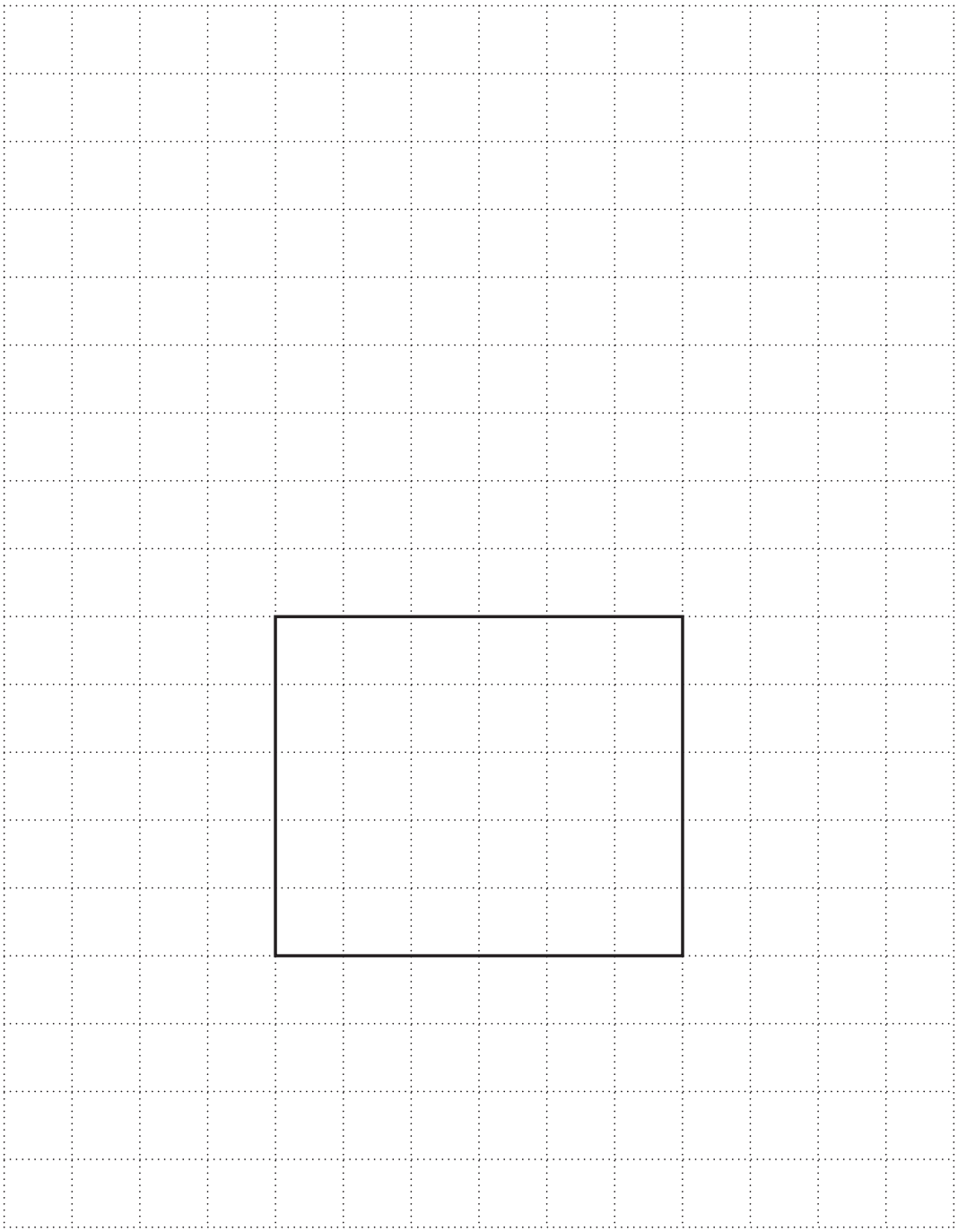
On the 1 $cm^2$ grid, complete the net of the cuboid.
The base is drawn for you.



[3]

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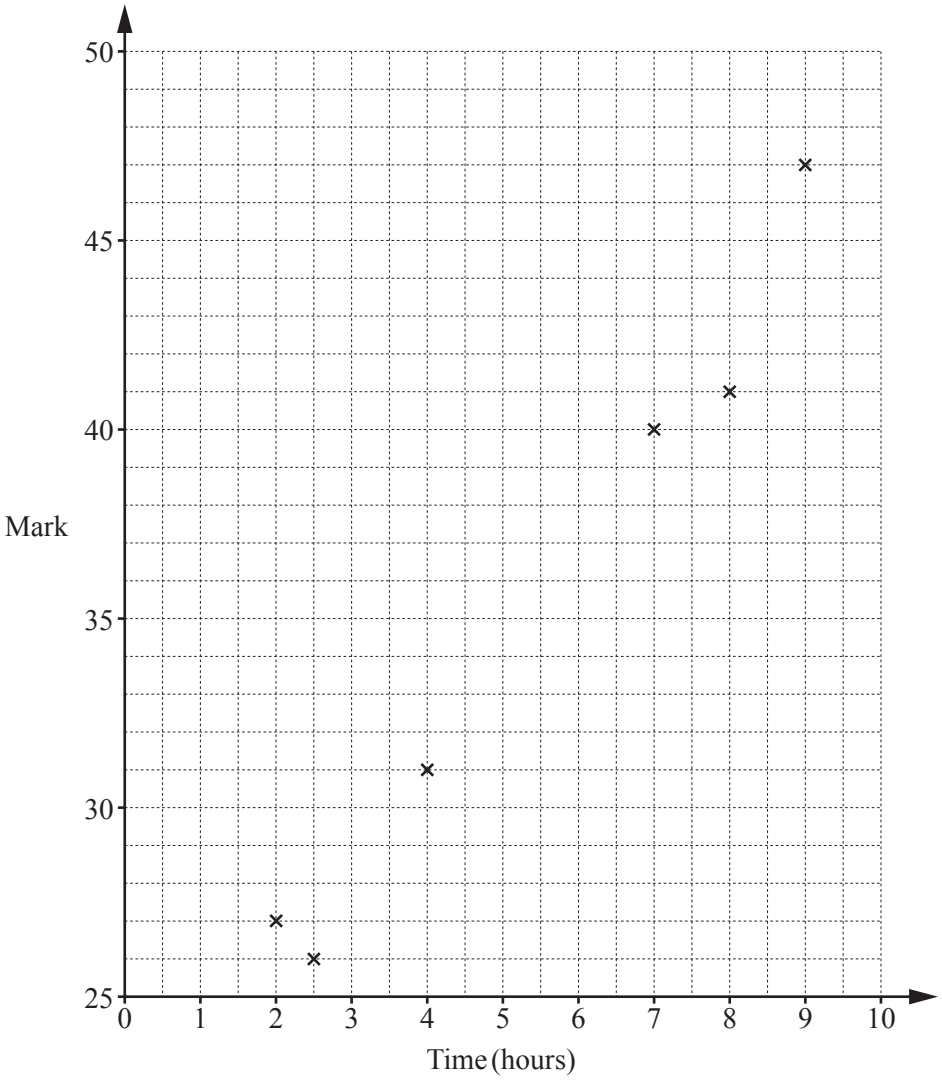
**22** Six students revise for a test.
The scatter diagram shows the time, in hours, each student spent revising and their mark in the test.




**(a)** The data for two more students is shown in the table.

View solution

| Time (hours) | 4.5 | 6.5 |
|---|---|---|
| Mark | 33 | 35 |

Plot these two points on the scatter diagram. [1]

**(b)** What type of correlation is shown on the scatter diagram?

View solution

..... [1]

**(c)** Draw a line of best fit on the scatter diagram.

View solution [1]

**(d)** Another student spent 5.5 hours revising.

View solution

Estimate a mark for this student.

..... [1]

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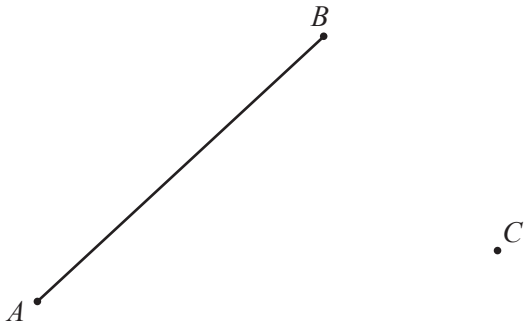
**23**




The diagram shows the positions of three points, $A$, $B$ and $C$.

**(a)** **Using a ruler and compasses only**, construct

View solution

**(i)** the perpendicular bisector of the line $AB$, [2]

**(ii)** the locus of all points that are 3 cm from $C$. [2]

**(b)** Shade the region that is

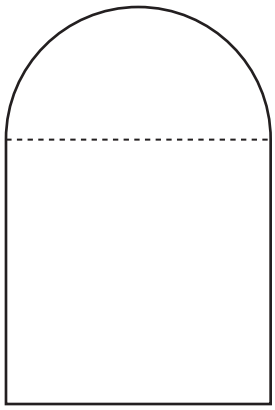
View solution

- closer to $A$ than to $B$

and

- less than 3 cm from $C$. [1]

**24** The diagram shows a notice board.




NOT TO SCALE

The board is in the shape of a semicircle joined to a square with side 74 cm.

View solution

**(a)** Calculate

**(i)** the perimeter of the board,

..... cm [3]

View solution

**(ii)** the area of the board.

.....$cm^2$ [3]

View solution

**(b)** The board is a prism that is 5 cm thick.

Calculate the volume of the board.

.....$cm^3$ [1]

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