Second Variant Question Paper

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

*9940372872*

**MATHEMATICS** **0580/12, 0581/12**

Paper 1 (Core) **October/November 2008**

**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 $\pi$, 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.

| For Examiner's Use |
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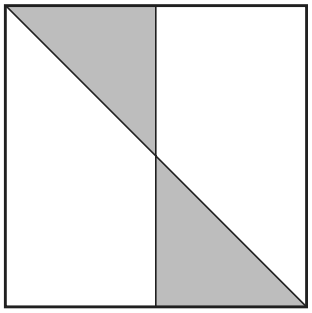
This document consists of **9** printed pages and **3** blank pages.

For Examiner's Use

**1** Write down a multiple of 9 and 12 which is less than 40.

*Answer* ..... [1]

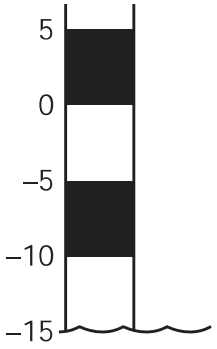
**2**



Write down the order of rotational symmetry of the diagram above.

*Answer* ..... [1]

**3** On 1st August the level of water in a lake was −15 metres.
A month later the level was 2 metres higher.
Write down the new level of water.




*Answer* ..... m [1]

**4** The area of a square is 54.76 $cm^2$.
Work out the length of one side of the square.

*Answer* ..... cm [1]

**5** Expand the brackets and simplify $3x - 5(4x - 2)$.

*Answer* ..... [2]

*For Examiner's Use*

**6** The scale on a map is 1:250 000.
A road is 3.8 centimetres long on the map.
Calculate the actual length of the road in kilometres.

*Answer* ..... km [2]

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**7** $>$ $=$ $<$

Choose one of the symbols above to complete each of the following statements.

**(a)** $74\%$ ..... $\frac{5}{7}$ [1]

**(b)** $\left(\frac{1}{2}\right)^{-3}$ ..... $8$ [1]

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**8** Juanita changed \$30 into euros when the exchange rate was €1=\$1.2685.
How many euros did she receive?
Give your answer correct to 2 decimal places.

*Answer* € ..... [2]

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**9** Solve the equation $5x + 1 = 54$.

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

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**10** The length of the River Nile is 6700 kilometres, correct to the nearest hundred kilometres.
Complete the statement about the length, $L$ kilometres, of the River Nile.

*Answer* ..... $\leqslant L <$ ..... [2]

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**11**

For Examiner's Use

| | | | | |
|---|---|---|---|---|
| City centre | 11 15 | 12 30 | 13 10 | 13 40 |
| Heatherton | 11 25 | 12 40 | 13 20 | 13 50 |
| Rykneld | 11 29 | 12 44 | 13 24 | 13 54 |

The table above is part of a bus timetable.

**(a)** The 11 15 bus left the City centre on time and arrived at Rykneld 2 minutes early.
How many minutes did it take to reach Rykneld?

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

**(b)** Paulo walked to the bus stop at Heatherton and arrived at 12 56.
The next bus arrived on time.
How many minutes did Paulo wait for the bus?

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

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**12** The line with equation $y = 2x - k$ passes through the point (4 , 0).
Work out the value of $k$.

*Answer* $k$ = ..... [2]

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**13** Write 0.00656

**(a)** in standard form,

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

**(b)** correct to 2 significant figures,

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

**(c)** correct to 2 decimal places.

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

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For Examiner's Use

**14** **Without using your calculator**, work out $\frac{4}{9} \div 6\frac{2}{3}$.

Give your answer as a fraction in its lowest terms.
You must show **all** your working.

*Answer*

[3]

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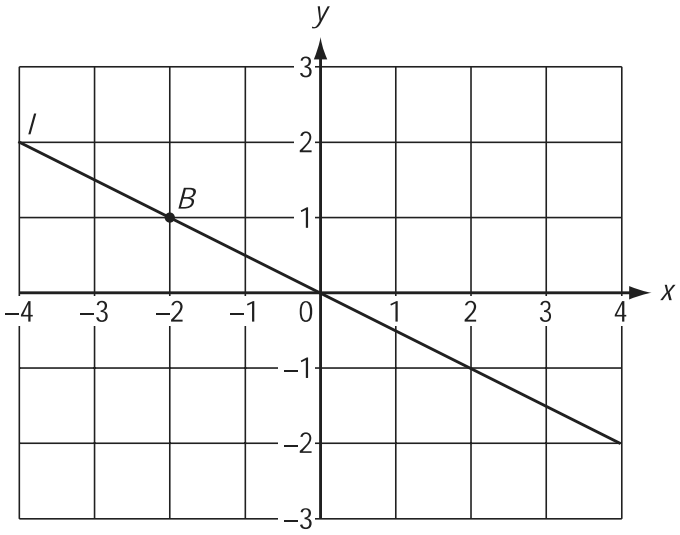
**15**




**(a)** Mark clearly on the diagram the point with co-ordinates (3, 2) and label it *A*. [1]

**(b)** Write down the co-ordinates of the point *B*.

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

**(c)** Find the gradient of the line *l*.

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

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*For Examiner's Use*

**16** Simplify

**(a)** $\left(\frac{1}{p}\right)^0$,

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

**(b)** $q^3 \times q^5$,

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

**(c)** $(r^4)^{-2}$.

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

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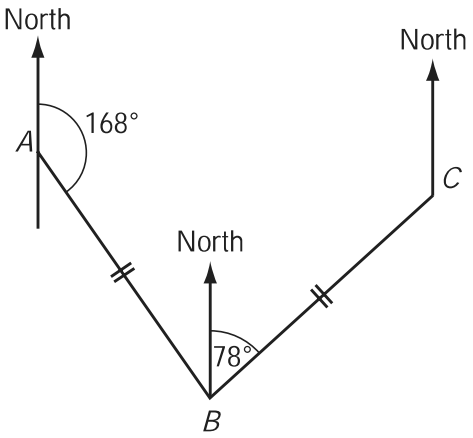
**17**

NOT TO SCALE




The diagram shows the route of a fishing boat.
The boat sails from $A$ to $B$ on a bearing 168° and then from $B$ to $C$ on a bearing 078°.
$AB = BC$.

**(a)** Show that angle $ABC = 90°$.

*Answer(a)*

[1]

**(b)** Work out the bearing of $C$ from $A$.

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

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*For Examiner's Use*

**18** **(a)** Calculate the volume of a cylinder of radius 60 cm and height 129 cm.

*Answer(a)* ..... $cm^3$ [2]

**(b)** Write your answer to **part (a)** in cubic metres.

*Answer(b)* ..... $m^3$ [1]

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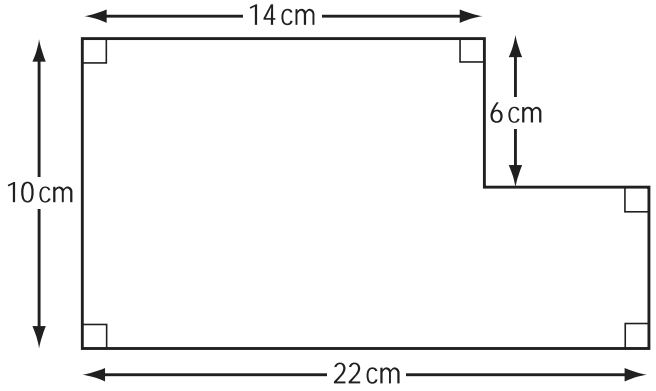
**19**




NOT TO SCALE

For the shape above, work out

**(a)** the perimeter,

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

**(b)** the area.

*Answer(b)* ..... $cm^2$ [2]

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For Examiner's Use

**20** **(a)** 85% of the seeds in a packet will produce red flowers.
One seed is chosen at random.
What is the probability that it will **not** produce a red flower?

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

**(b)** A box of 15 pencils contains 5 red, 4 yellow and 6 blue pencils.
One pencil is chosen at random from the box.
Find the probability that it is

**(i)** yellow,

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

**(ii)** yellow or blue,

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

**(iii)** green.

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

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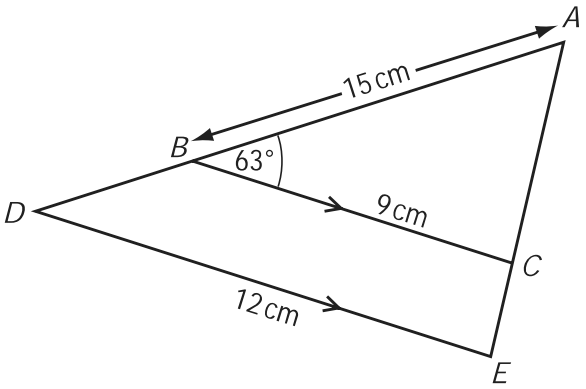
**21**




NOT TO SCALE

In the diagram *BC* is parallel to *DE*.

**(a)** Complete the following statement.

Triangle *ABC* is ..... to triangle *ADE*. [1]

**(b)** *AB* = 15 cm, *BC* = 9 cm and *DE* = 12 cm.
Calculate the length of *AD*.

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

**(c)** Angle *ABC* = 63°.
Calculate the size of the reflex angle at *D*.

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

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*For Examiner's Use*

**22** A travel brochure contains 24 pictures from different countries.
The table shows how many pictures there are from each country.

| Country | Number of pictures | Angle in a pie chart |
|---|---|---|
| Argentina | 6 | 90° |
| South Africa | 10 | 150° |
| Australia | 3 | |
| New Zealand | | |

**(a)** Complete the table. [3]

**(b)** Complete the pie chart accurately and label the sectors for South Africa, Australia and New Zealand.


[2]

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