UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MATHEMATICS

Paper 1 (Core)

0580/01 0581/01

Candidates answer on the Question Paper.
Additional Materials: Electronic calculator
Geometrical instruments
Mathematical tables (optional)
Tracing paper (optional)

October/November 2004

1hour

Candidate Name

Centre Number

Candidate Number

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 in the spaces provided on the Question Paper.
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 THE BARCODE.
DO **NOT** WRITE IN THE GREY AREAS BETWEEN THE PAGES.
Answer **all** questions.
If working is needed for any question it must be shown below that question.
The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 56.
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. Given answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

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1 At a weather centre the temperature at midnight was –21 °C.
By noon the next day it had risen to –4 °C.
By how many degrees had the temperature risen?

Answer ..... °C [1]

---

2 Place brackets in the following calculation to make it a correct statement.

$$10 - 5 \times 9 + 3 = 60$$ [1]

---

3 Write $\frac{5}{9}$ as a decimal, correct to two decimal places.

Answer ..... [2]

---

4 When $x = 5$ find the value of

(a) $4x^2$,

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

(b) $(4x)^2$.

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

---

5 Antonia is making a cake.
She uses currants, raisins and sultanas in the ratio

currants : raisins : sultanas = 4 : 3 : 5.

The total mass of the three ingredients is 3.6 kilograms.
Calculate the mass of sultanas.

Answer ..... kg [2]

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6 Write as a 3-figure bearing the direction

(a) West,

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

(b) North-East.

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

---

7 Reflex Right Acute Obtuse

Use one of the above terms to describe each of the angles given.

(a) 100^o

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

(b) 200^o

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

---

8 $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$

Work out $\mathbf{a} - 2\mathbf{b}$.

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

---

9 $\frac{3}{5} \div \frac{7}{10} = \frac{6}{7}$

Show how this calculation is done without using a calculator.

Write down the working.

Answer

[2]

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10 Simplify the following expressions.

(a) $a^2 \times a^5$

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

(b) $b^4 \div b^3$

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

---

11 $=$ $<$ $>$

Use one of the above symbols to complete each of the statements in the answer spaces.

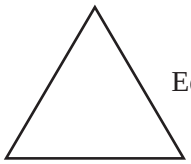
Answer(a) 2^3 ..... 3^2 [1]

Answer(b) 9% ..... 0.09 [1]

---

12 Write down the order of rotational symmetry of each of the following shapes.

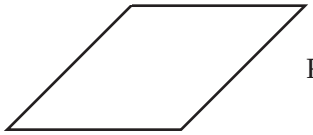
(a)



Equilateral Triangle

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

(b)



Rhombus

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

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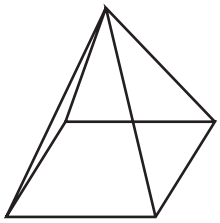

The diagram shows a pyramid with a square base.
All the sloping edges are the same length.
In the space below sketch a net of the pyramid.

[2]

14 Bernard is buying a radio priced at $19.60.
The shopkeeper gives him a 15% discount.
Calculate how much Bernard pays.

Answer $ ..... [3]

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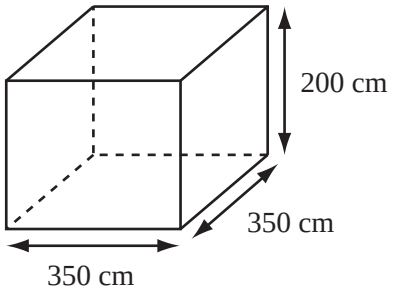
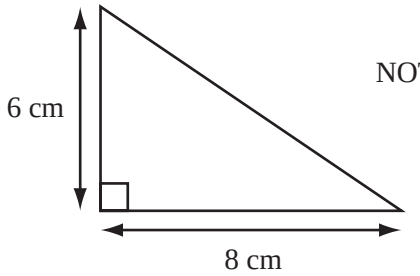
NOT TO SCALE



A large tank, in the shape of a cuboid, has a square base of side 350 cm and height 200 cm.
The tank is filled with water.
Find, in **litres**, the volume of water it holds when full.

Answer ..... litres [3]

16



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The measurements shown are correct to the nearest centimetre.

(a) Write down the least possible measurement of

(i) the base of the right-angled triangle,

Answer(a)(i) base = ... cm [1]

(ii) the height of the right-angled triangle.

Answer(a)(ii) height = ... cm [1]

(b) Use your answers to **part (a)** to calculate the least possible area of the triangle.

Answer(b) area = ... cm^2 [1]

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17 Ferdinand's electricity meter is read every three months.
The reading on 1st April was 70683 units and on 1st July it was 71701 units.

(a) How many units of electricity did he use in those three months?

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

(b) Electricity costs 8.78 cents per unit.
Calculate his bill for those three months.
Give your answer in dollars, correct to the nearest cent.

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

---

18 **(a)** List all the factors of 30.

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

(b) Write down the prime factors of 30.
(1 is not a prime number.)

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

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19 In New Zealand, a bus leaves New Plymouth at 8.10 am and arrives in Wellington at 2.55 pm.

(a) How long, in **hours and minutes**, does the journey take?

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

(b) The distance from New Plymouth to Wellington is 355 kilometres.
Calculate, in kilometres per hour, the average speed for the journey.

Answer(b) ..... km/h [3]

---

20 Aminata has a bag containing 35 beads.
The beads are either blue, yellow or red.
One bead is chosen at random.

The probability of choosing a blue bead is $\frac{2}{7}$ and the probability of choosing a yellow bead is $\frac{3}{5}$.

Calculate

(a) the number of blue beads in the bag,

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

(b) the probability of choosing a red bead.

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

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21 Calculate, giving your answer in **standard form**,

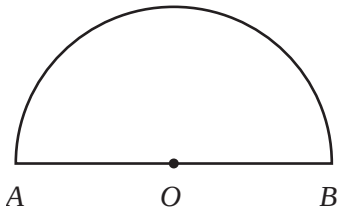
(a) $(1.5 \times 10^3) + (8.4 \times 10^2)$,

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

(b) $(1.5 \times 10^3) \times (8.4 \times 10^2)$.

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

22



NOT TO SCALE

The diagram shows half of a circle, centre *O*.

(a) What is the special name of the line *AB*?

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

(b) $AB = 12$ cm.

(i) Calculate the perimeter of the shape.

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

(ii) Calculate the area of the shape.

Answer(b)(ii) ..... cm^2 [2]

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