Centre Number	Candidate Number	Name

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MATHEMATICS

0580/01
0581/01

Paper 1 (Core)

May/June 2004

Candidates answer on the Question Paper.

1 hour

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 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.

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 of the 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. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

For Examiner's Use

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

1 Work out $4^3 - 5^2$.

Answer .... [1]

2 The Dead Sea shore is 395 metres **below** sea level.
Hebron is 447 metres **above** sea level.
Find the difference in height.

Answer .... [1]

3 Write as a fraction in its lowest terms

(a) 75%,

Answer (a) .... [1]

(b) 0.07.

Answer (b) .... [1]

4 Look at the numbers

21, 35, 49, 31, 24.

From this list write down

(a) a square number,

Answer (a) .... [1]

(b) a prime number.

Answer (b) .... [1]

5
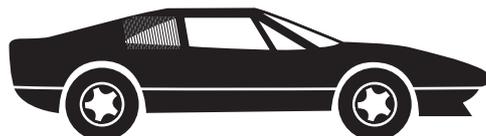
NOT TO
SCALE

A model of a car has a scale of 1:25.
The model is 18 cm long.
Calculate, in metres, the actual length of the car.

Answer .... m [2]

6 Without using a calculator, work out $2\frac{1}{4} \div \frac{1}{2}$ as a single fraction.

Show all your working.

Answer .... [2]

7 Sergio's height is 142 cm, to the nearest centimetre.
Complete the statement about the limits of his height.

Answer .... cm $\leqslant$ height < .... cm [2]

8 Factorise completely $4xy - 6xz$.

Answer .... [2]

9 Alix changed a traveller's cheque for 200 euros (€) into dollars ($) when she visited the USA.
The exchange rate was 1 dollar = 1.05 euros.
How many dollars did she receive?

Answer $ .... [2]

10

For the shape shown, write down

(a) the number of lines of symmetry,

Answer (a) .... [1]

(b) the order of rotational symmetry.

Answer (b) .... [1]

[Turn over

11
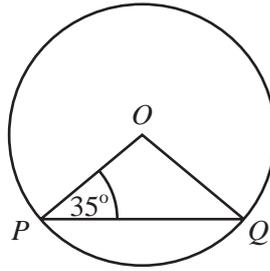
NOT TO
SCALE

PQ is a chord of a circle, centre *O*. Angle *OPQ* = 35°.
Calculate angle *POQ*.

Answer Angle *POQ* = ... [2]

12 **(a)** $\left(\frac{1}{2}\right)^{x} = \frac{1}{8}$

Write down the value of *x*.

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

(b) $7^{y} = 1$
Write down the value of *y*.

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

13 $218 \div 39$

(a) **(i)** Write both numbers in the calculation above correct to one significant figure.

Answer (a)(i) .... ÷ .... [1]

(ii) Use your answer to **part (i)** to estimate the value of the calculation.

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

(b) Use your calculator to find the value of the calculation correct to two significant figures.

Answer (b) .... [1]

14 Shampoo is sold in two sizes, *A* and *B*.

A   *B*
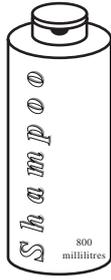
NOT TO
SCALE

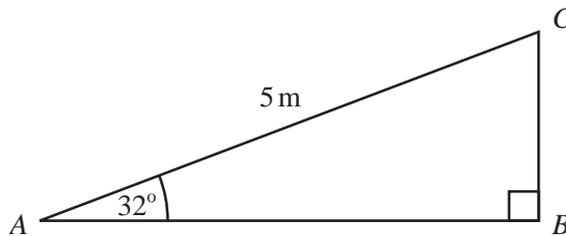800 millilitres $1.30   1.5 litres $2.30

A contains 800 ml and costs $ 1.30.
B contains 1.5 litres and costs $ 2.30.
Which is the better value for money?
Show your working clearly.

Answer .... [3]

15

5 m   NOT TO
SCALE

32°

A   *B*

In the right-angled triangle *ABC*, *AC* = 5 metres and angle *CAB* = 32°.
Calculate the length of *BC*.

Answer BC = ... m [3]

[Turn over

6

For Examiner's Use

16 $y = a + bc$

(a) Find the value of y when $a = -3$, $b = 2$ and $c = 8$.

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

(b) Make c the subject of the formula.
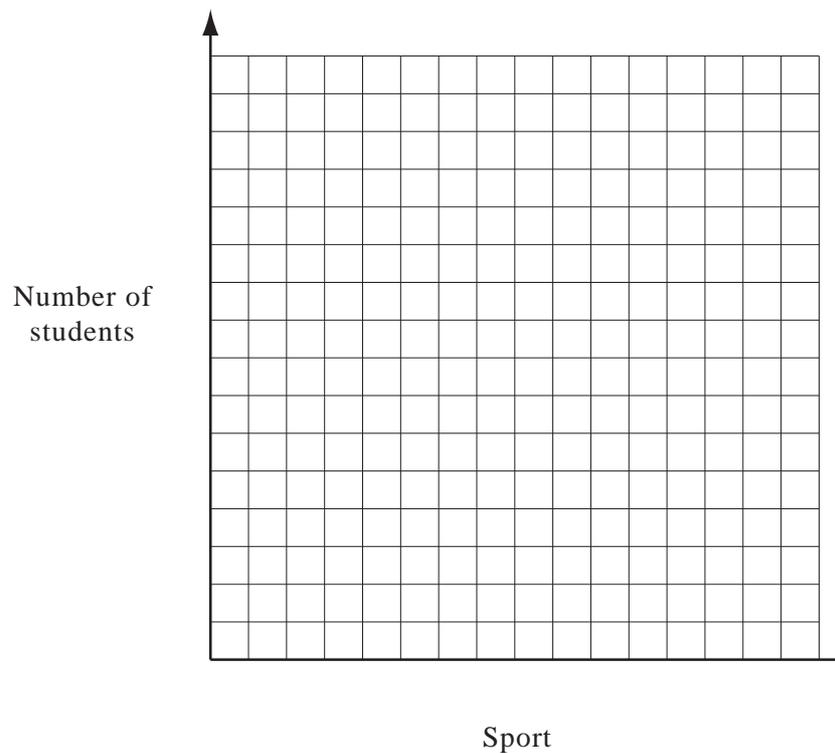
Answer (b) c = ... [2]

17 In a school, the number of students taking part in various sports is shown in the table below.

Sport	Number of students
Basketball	40
Soccer	55
Tennis	35
Volleyball	70

Draw a bar chart below to show this data.
Show your scale on the vertical axis and label the bars.

Answer

Number of
students

Sport

[4]

18 Carlos buys a box of 50 oranges for $8.
He sells all the oranges in the market for 25 cents each.

(a) Calculate the profit he makes.

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

(b) Calculate the percentage profit he makes on the cost price.

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

19

NOT TO
SCALE
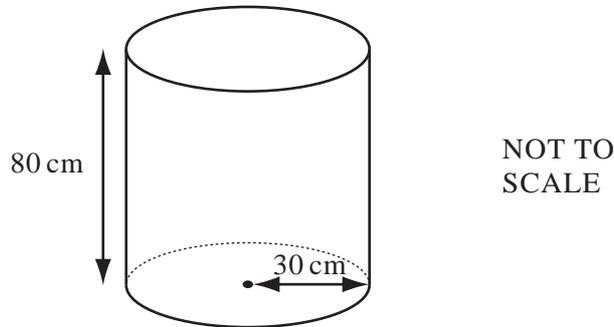
80 cm

30 cm

The diagram shows a cylindrical tank.
The radius is 30 cm and the height is 80 cm.

(a) Calculate the area of the base of the tank.

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

(b) Calculate the volume of the tank **in litres**.

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

[Turn over

20 Solve the equations

(a) $4x - 5 = 31$,

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

(b) $4(y - 5) = 36$.

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

21

The time in Dubai is 3 hours ahead of Birmingham.

(a) If it is 21 15 on Sunday in Birmingham, what time on Monday is it in Dubai?

Answer (a) .... [1]

(b) An aircraft leaves Birmingham at 21 15 on Sunday and arrives in Dubai on Monday at 07 45 **local time**.

(i) How long did the journey take?

Answer (b)(i) .... h ....,min [1]

(ii) The distance from Birmingham to Dubai is 5620 km. Calculate the average speed of the aircraft.

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