Centre Number	Candidate Number	Name

CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MATHEMATICS

0580/01
0581/01

Paper 1

May/June 2003

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 in the spaces provided on the Question Paper.
You may use a soft 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.

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.

For Examiner's Use

1 Work out $\sqrt{7.1^3 + 2.9^3}$, giving

(a) your full calculator display,

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

(b) your answer to 2 decimal places.

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

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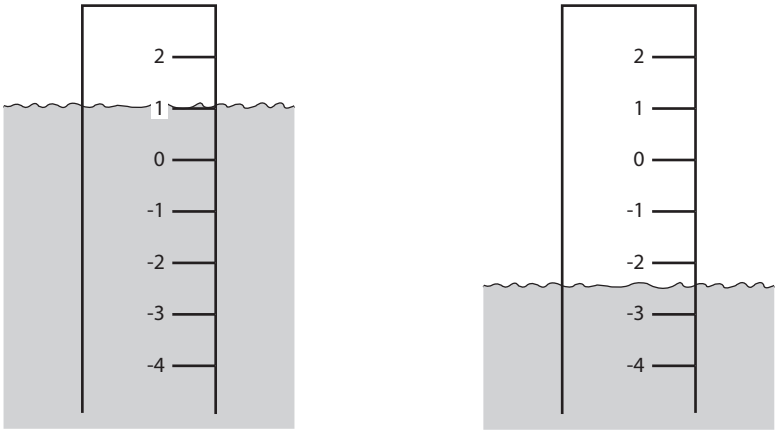
2 The diagram shows how the water level of a river went down during a drought.



The measurements are in metres.

(a) By how many metres did the water level go down?

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

(b) A heavy rainfall followed the drought and the water level went up by 1.6 metres.
What was the water level after the rainfall?

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

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3 **(a)** Write in order of size, smallest first

$$0.68, \qquad \frac{33}{50}, \qquad 67\%.$$

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

(b) Convert 0.68 into a fraction in its lowest terms.

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

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4 Mahesh and Jayraj share \$72 in the ratio 7:5.
How much does Mahesh receive?

Answer \$……. [2]

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5 The population of a city is 550 000.
It is expected that this population will increase by 42% by the year 2008.
Calculate the expected population in 2008.

Answer ……. [2]

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6 Areeg goes to a bank to change \$100 into riyals.
The bank takes \$2.40 and then changes the rest of the money at a rate of \$1 = 3.75 riyals.
How much does Areeg receive in riyals?

Answer …….riyals [2]

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7 Write down the value of $\left(1\frac{1}{2}\right)^{-2}$ as a fraction.

Answer ……. [2]

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8 **(a)** $y = 4uv - 3v$.
Find the value of y when $u = -3$ and $v = 2$.

Answer (a) $y =$ ……. [1]

(b) Factorise $4uv - 3v$.

Answer (b) ……. [1]

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9 Solve the equation

$$x + 4 = 3(2 - x) .$$

Answer $x =$ ……. [3]

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10 There are approximately 500 000 grains of wheat in a 2 kilogram bag.

(a) Calculate the mass of one grain in grams.

Answer (a) …….……g [2]

(b) Write your answer to **part (a)** in standard form.

Answer (b) …….……g [1]

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11 Solve the simultaneous equations $3a + 2b = 7 ,$
$a - 2b = 5 .$

Answer $a =$ …….……

$b =$ …….……. [3]

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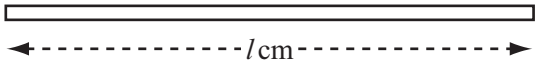
12 The diagram shows a pole of length l centimetres.



(a) Hassan says that $l = 88.2$.
Round this to the nearest whole number.

Answer (a) l = ……. [1]

(b) In fact the pole has a length 86 cm, to the nearest centimetre.
Complete the statement about l.

Answer (b) ……... ⩽ l < ……. [2]

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13 On a journey a bus takes 35 minutes to travel the first 10 kilometres.
It then travels a further 20 kilometres in the next 40 minutes.

(a) The bus started the journey at 18 50.
At what time did it complete the journey?

Answer (a)…… [1]

(b) Calculate the average speed of the whole journey in

(i) kilometres/minute,

Answer (b)(i)…….……km/min [2]

(ii) kilometres/hour.

Answer (b)(ii)…….……..…km/h [1]

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14 Show **all your working** for the following calculations.
The answers are given so it is only your working that will be given marks.

(a) $\frac{1}{2} + \frac{2}{3} = 1\frac{1}{6}$,

Answer (a)

[2]

(b) $1\frac{1}{5} \times 1\frac{3}{4} = 2\frac{1}{10}$.

Answer (b)

[2]

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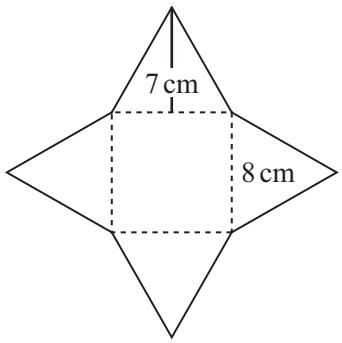
15 The diagram shows a square of side 8 cm and four congruent triangles of height 7 cm.



(a) Calculate

(i) the area of one triangle,

Answer (a)(i) ……cm^2 [2]

(ii) the area of the whole shape.

Answer (a)(ii) ……cm^2 [2]

(b) The shape is the net of a solid.
Write down the special name for this solid.

Answer (b) …… [1]

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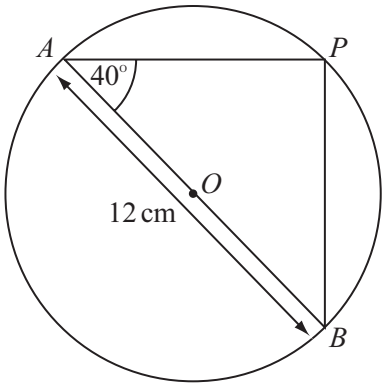
16 In the diagram AB is the diameter of a circle, centre O. The length of AB is 12 cm.



NOT TO SCALE

(a) Write down the size of angle APB.

Answer (a) Angle APB = ……. [1]

(b) Angle $PAB = 40°$.
Calculate the length of PB.

Answer (b) PB = ……cm [2]

(c) Calculate the area of the circle.

Answer (c) ……cm^2 [2]

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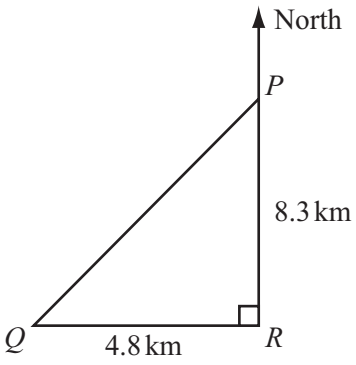


NOT TO SCALE

A straight road between P and Q is shown in the diagram.
R is the point south of P and east of Q.
$PR = 8.3$ km and $QR = 4.8$ km.

Calculate

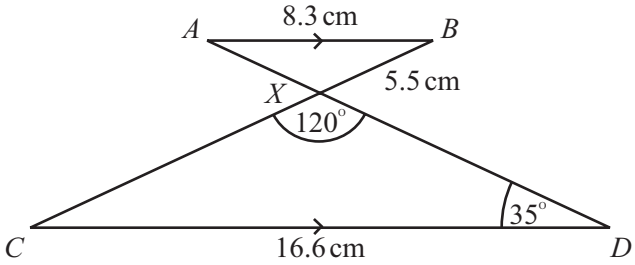
(a) the length of the road PQ,

Answer (a) ……...km [2]

(b) the bearing of Q from P.

Answer (b) …… [3]

18



NOT TO SCALE

In the diagram the lines *AB* and *CD* are parallel.
The lines *AD* and *BC* intersect at *X*.
Angle *XDC* = 35° and angle *CXD* = 120°.

(a) **(i)** Write down the size of angle *BAX*.

Answer(a)(i) Angle *BAX* = ……. [1]

(ii) Write down the size of angle *ABX*.

Answer(a)(ii) Angle *ABX* = ……..... [1]

(b) Complete the statement

Triangle *AXB* is …… to triangle *DXC*. [1]

(c) *AB* = 8.3 cm, *BX* = 5.5 cm and *CD* = 16.6 cm.
Calculate the length of *CX*.

Answer (c) ……..……cm [2]

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