Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

MATHEMATICS **0580/13**

Paper 1 (Core) **October/November 2016**

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 π, 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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **12** printed pages.

CAMBRIDGE International Examinations

1 Write in figures the number five thousand and thirty four.

.....[1]

2 Work out.

$-2 + 7 - 8$

.....[1]

3 $V = 4p^2$

Find V when $p = 3$.

$V =$ .....[1]

4 Simplify.

$n^2 \times n^5$

.....[1]

5 The mass, m kg, of a car is 948 kg, correct to the nearest kilogram.

Complete the statement about the value of m.

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

6 Write in standard form.

(a) 2 470 000

.....[1]

(b) 0.0079

.....[1]

7 Write these in order of size, smallest first.

0.6^3 0.22 $\sqrt{0.09}$ 0.4^2

..... < ..... < ..... < .....[2]
smallest

8 James is an animal doctor.
The table shows some information about the cats he saw in one week.

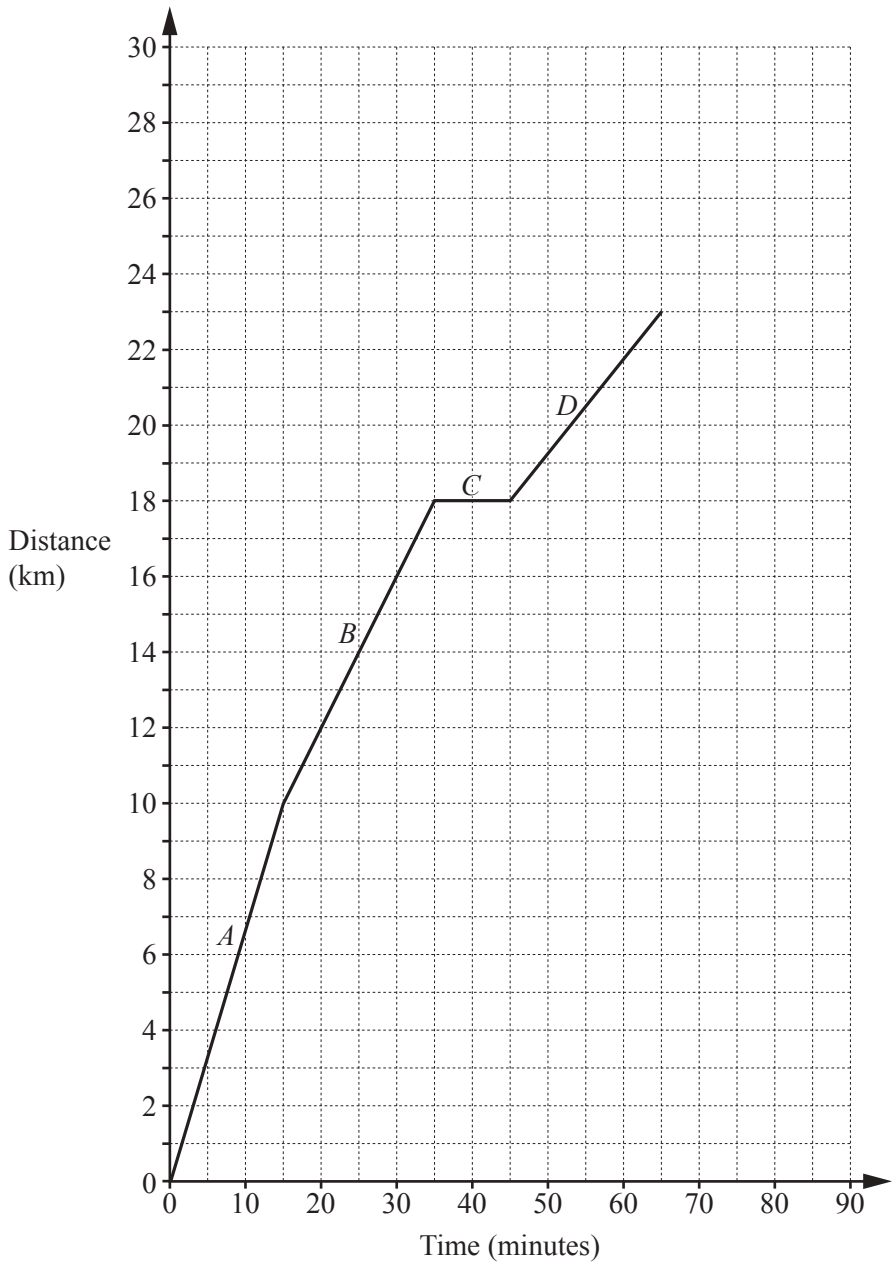
Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of cats seen	2	4	1	3	2
Mean mass of a cat (kg)	1.9	0.9	2.1	1.8	2

One of the cats James saw had a mass of 4 kg.

On which day did he see this cat?

..... [2]

9



The diagram shows the distance-time graph for the first 65 minutes of a bicycle journey.

(a) There are four different parts to the journey labelled *A*, *B*, *C* and *D*.

Write down the part of the journey with the fastest speed.

..... [1]

(b) After the first 65 minutes the bicycle travels at a constant speed of 20 km/h for 15 minutes.

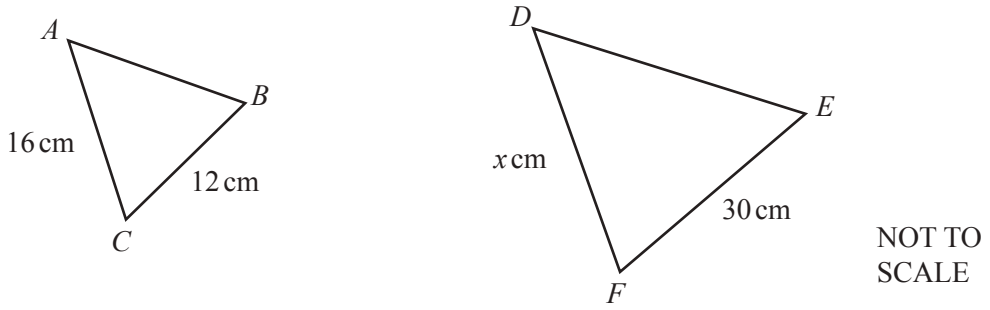
Draw this part of the journey on the diagram. [1]

10 **Without using a calculator**, work out $\frac{3}{5}+\frac{1}{6}$.

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

..... [2]

11 Triangles *ABC* and *DEF* are similar.



Find the value of x.

x = ... [2]

12 **(a)** Change 0.183 metres to centimetres.

..... cm [1]

(b) Change 12 800 square millimetres to square centimetres.

..... cm^2 [1]

13 Here are the heights, in centimetres, of 8 people.

153 175 168 158 161 172 164 172

(a) Write down the mode.

..... cm [1]

(b) Find the median.

..... cm [2]

14 **(a)** Write $\frac{3}{5}$ as a decimal.

..... [1]

(b) Write 48% as a fraction in its simplest form.

..... [2]

15 The exchange rate between the dollar and the Thai Baht is \$1 = 31.48 Baht.

(a) Andy buys a watch in New York for \$84.

How much is this in Baht?

..... Baht [1]

(b) Ning buys a watch in Bangkok for 4200 Baht.

How much is this in dollars?

\$ ..... [2]

16 **(a)** A bag contains 3 red, 5 blue and 4 green counters.
A counter is picked at random.

Work out the probability that the counter is

(i) blue,

..... [1]

(ii) yellow.

..... [1]

(b) The probability of picking a brown counter from another bag is 0.35 .

Work out the probability of not picking a brown counter.

..... [1]

17 The table shows the opening hours of a doctor's surgery.

Day	Opening hours
Monday	09 00 – 14 00
Tuesday	09 00 – 14 00
Wednesday	09 00 – 16 30
Thursday	09 00 – 14 00
Friday	09 00 – 18 30
Saturday	08 30 – 12 30
Sunday	CLOSED

Work out the total number of hours the surgery is open during a week.

..... hours [3]

18 **(a)** Work out.

$$\begin{pmatrix} 5 \\ -1 \end{pmatrix} + \begin{pmatrix} -3 \\ 2 \end{pmatrix}$$

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(b) A is the point (3, 6) and B is the point (5, 10).

Work out $\overrightarrow{AB}$.

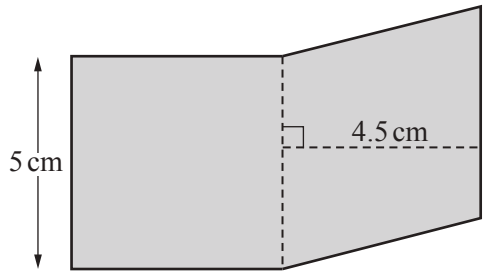
$\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(c) C is the point (5, 8) and $\overrightarrow{CD} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$.

Find the co-ordinates of the point D.

(..... , ...) [1]

19 The shaded shape is made by joining a square and a rhombus.



NOT TO SCALE

Work out

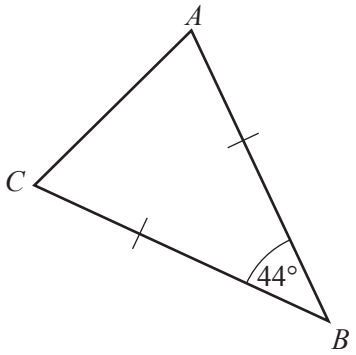
(a) the perimeter of the shaded shape,

..... cm [1]

(b) the area of the shaded shape.

..... cm^2 [2]

20 (a)



NOT TO SCALE

Triangle ABC is an isosceles triangle with $AB = CB$.
Angle $ABC = 44°$.

Find angle ACB.

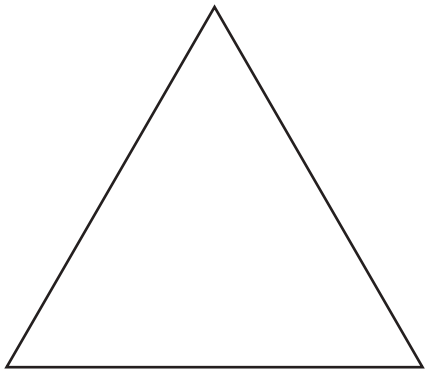
Angle ACB = ... [1]

(b) A regular polygon has an exterior angle of 40°.

Work out the number of sides of this polygon.

..... [2]

21 **(a)** The diagram shows an equilateral triangle.



On the diagram, draw all the lines of symmetry. [2]

(b) **(i)** In the space below, draw a quadrilateral that has 2 lines of symmetry and rotational symmetry of order 2.

[1]

(ii) Write down the mathematical name of your quadrilateral.

..... [1]

22 A circle has a radius of 6.4 cm.

(a) Work out the circumference of the circle.

..... cm [2]

(b) The circle forms the top of a cylinder of height 12 cm.

Work out the volume of the cylinder.

..... cm^3 [2]

Question 23 is printed on the next page.

23 Solve the simultaneous equations.
You must show all your working.

$$5x + 4y = 17$$
$$2x - 3y = 16$$

$x =$ .....

$y =$ ..... [4]