Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

9156328305

MATHEMATICS **0580/11**

Paper 1 (Core) **May/June 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 **11** printed pages and **1** blank page.

© UCLES 2016

CAMBRIDGE International Examinations

[Turn over

1 A train leaves Zurich at 22 40 and arrives in Vienna at 07 32 the next day.

Work out the time taken.

..... h ..... min [1]

2 From a sample of 80 batteries, 3 are faulty.

Work out the percentage of faulty batteries.

..... % [1]

3 In a group of students the probability that a student is left-handed is 0.28 .
A student is chosen at random from the group.

Find the probability that this student is not left-handed.

.....[1]

4 Write 1.27×10^{-3} as an ordinary number.

.....[1]

5 Change 60 000 metres to kilometres.

..... km [1]

© UCLES 2016

6 Calculate $(2.1 - 0.078)^{17}$, giving your answer correct to 4 significant figures.

..... [2]

7 Write down the mathematical name for

(a) an angle that is less than 90°,

..... [1]

(b) a five-sided polygon.

..... [1]

8 Work out.

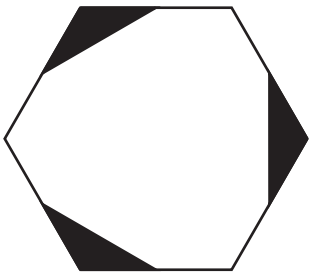
(a) $\begin{pmatrix} -2 \\ -3 \end{pmatrix} + \begin{pmatrix} -4 \\ 7 \end{pmatrix}$

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

(b) $5\begin{pmatrix} 2 \\ -8 \end{pmatrix}$

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

9



(a) Write down the order of rotational symmetry of the shape.

..... [1]

(b) Draw all the lines of symmetry on the shape. [1]

10 Omar changes 2000 Saudi Arabian riyals (SAR) into euros (€) when the exchange rate is €1 = 5.087 SAR.

Work out how much Omar receives, giving your answer correct to the nearest euro.

€ ..... [2]

11 Find the lowest common multiple (LCM) of 36 and 48.

..... [2]

12 $y = mx + c$

Find the value of y when $m = -2$, $x = -7$ and $c = -3$.

$y =$ ..... [2]

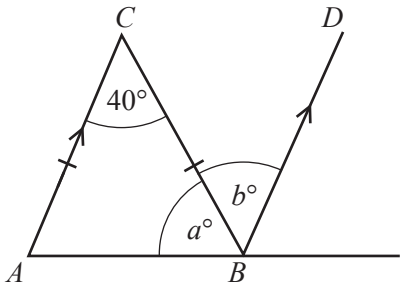
13 $y = \frac{qx}{p}$

Write x in terms of p, q and y.

$x =$ ..... [2]

© UCLES 2016

14



NOT TO SCALE

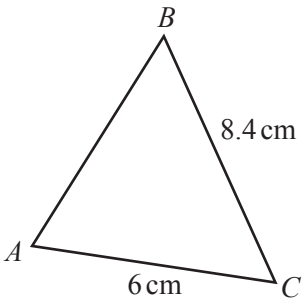
Triangle *ABC* is isosceles and *AC* is parallel to *BD*.

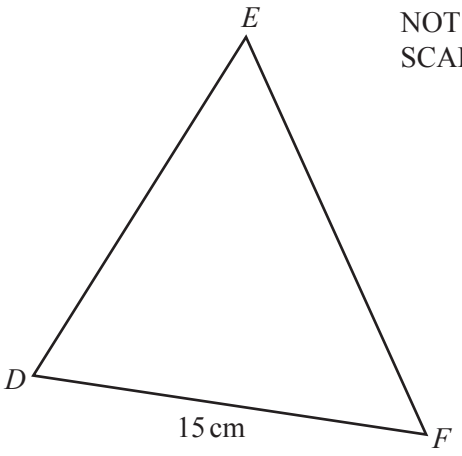
Find the value of *a* and the value of *b*.

a = ...

b = ... [2]

15 Triangle *ABC* and triangle *DEF* are similar.





NOT TO SCALE

Calculate the length of *EF*.

EF = ... cm [2]

16 **Without using a calculator**, work out $\frac{6}{7} \div 1\frac{2}{3}$.

Show all your working and give your answer as a fraction in its lowest terms.

..... [3]

17 Find the next term in each of these sequences.

(a) 3, 7, 11, 15, …

..... [1]

(b) 10, 7, 4, 1, …

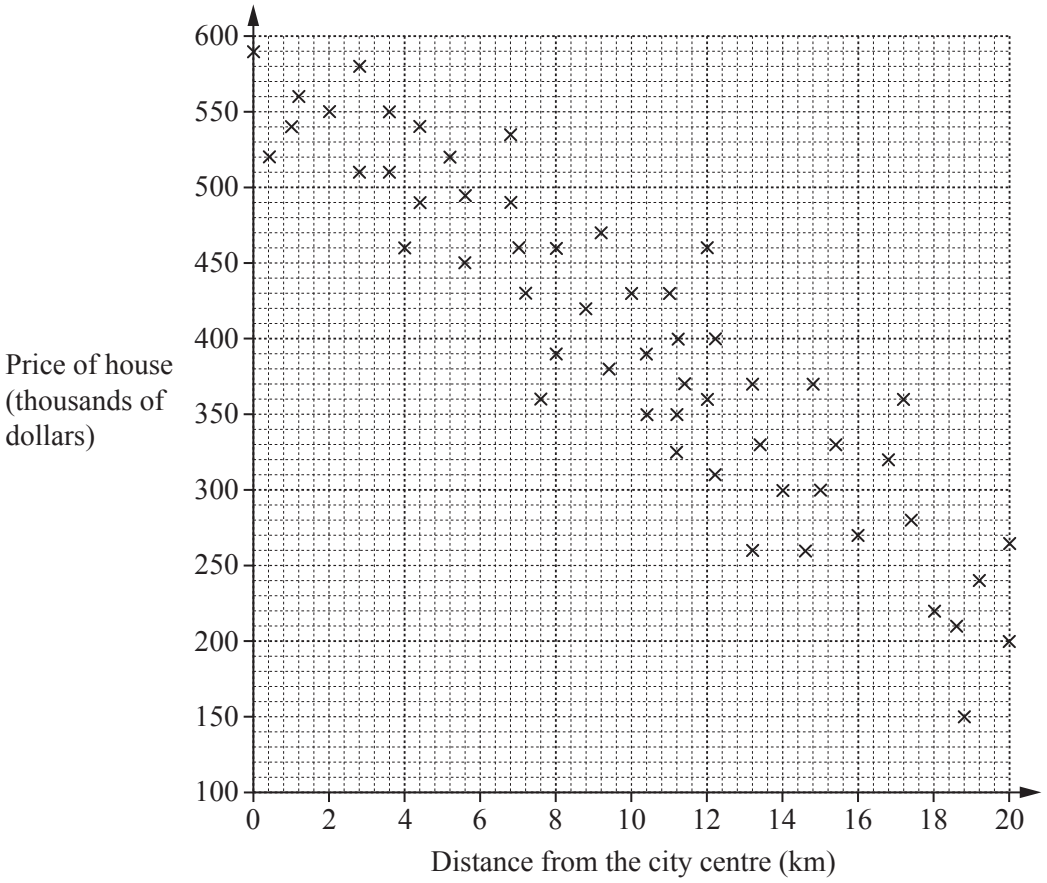
..... [1]

(c) 1, 9, 25, 49, …

..... [1]

© UCLES 2016

18 The scatter diagram shows the prices of houses for sale and their distances from the city centre.



(a) What type of correlation is shown in this scatter diagram?

..... [1]

(b) Brad wants to live as close to the city centre as possible.
He has a maximum of $500 000 to spend on one of these houses.

How close to the city centre can he live?

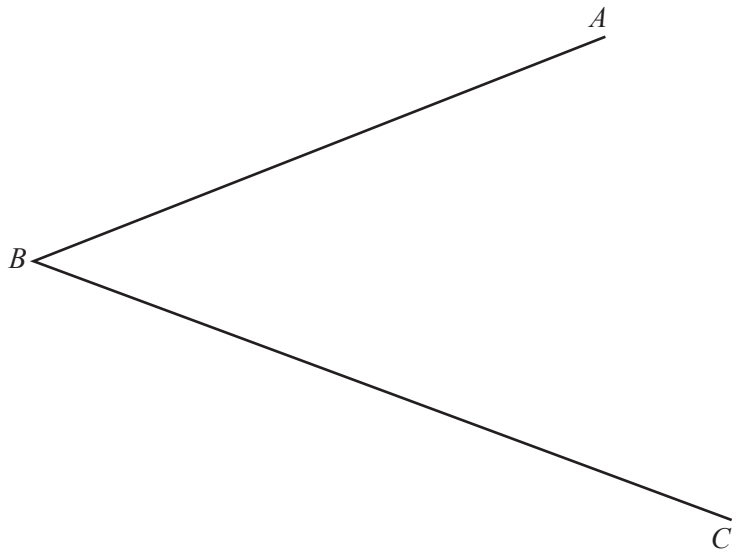
..... km [1]

(c) **(i)** Draw a line of best fit on the scatter diagram. [1]

(ii) Estimate the price of a house that is 14 km from the city centre.

$..... [1]

19 (a) Using a straight edge and compasses only, construct the bisector of angle *ABC*.



[2]

(b) Using a straight edge and compasses only, construct the perpendicular bisector of the line *DE*.



[2]

© UCLES 2016

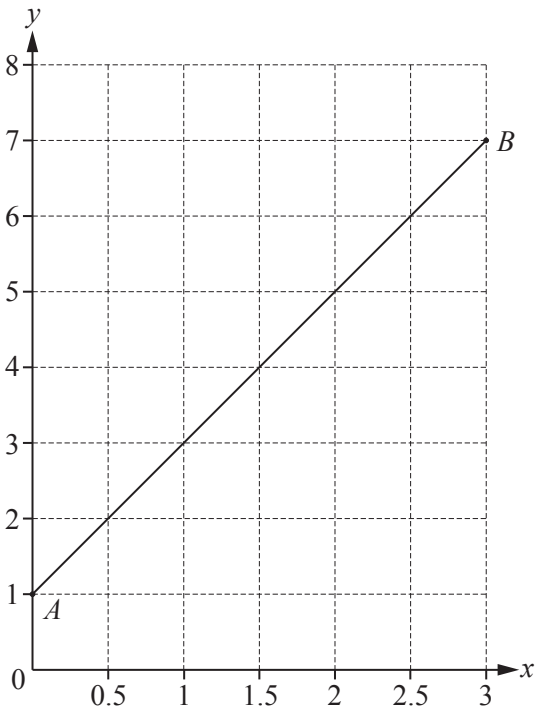
20 Solve the simultaneous equations.
You must show all your working.

$$2x + 3y = 15$$
$$5x + 4y = 13$$

$x =$ .....

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

21 (a)



The line AB is drawn on the grid.

(i) Write down the co-ordinates of A.

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

(ii) Work out the gradient of the line AB.

..... [2]

(iii) Write down the equation of the line AB in the form $y = mx + c$.

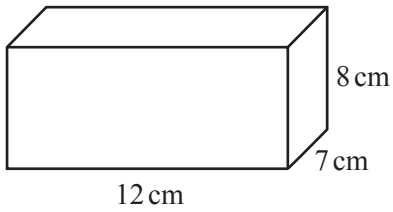
$y =$ ..... [2]

(b) Write down the equation of a straight line that is parallel to $y = 5x - 3$.

..... [1]

© UCLES 2016

22 (a)



NOT TO SCALE

Calculate the volume of this cuboid.

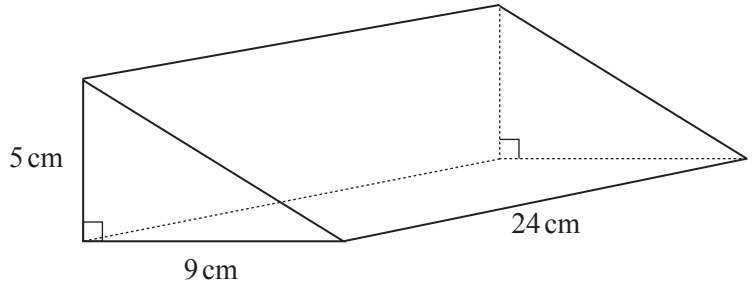
..... cm^3 [2]

(b) Another cuboid has width 6 cm, height 9 cm and volume 675 cm^3.

Calculate the length of this cuboid.

..... cm [2]

(c) The diagram shows a right-angled triangular prism.



NOT TO SCALE

Calculate the volume of this prism.

..... cm^3 [3]

© UCLES 2016

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.