Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

1558568507

MATHEMATICS **0580/12**

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 **12** printed pages.

© UCLES 2016

CAMBRIDGE International Examinations

1 Write these numbers in order of size, starting with the smallest.

0.304 0.2 0.008 0.57

..... < ..... < ..... < ..... [1]
smallest

2 Calculate.

$$\frac{3.07 + 2^4}{5.03 - 1.79}$$

..... [1]

3 Write 3.5897 correct to 4 significant figures.

..... [1]

4 A quadrilateral has rotational symmetry of order 2 and no lines of symmetry.

Write down the mathematical name of this quadrilateral.

..... [1]

5 Sonia earns \$8.12 for each hour she works.
She works for 35 hours each week.

Work out how much she earns each week.

\$..... [1]

6 Work out \$216 as a percentage of \$600.

.....% [1]

© UCLES 2016

7 Simplify.

(a) $3f + 4f - 2f$

..... [1]

(b) $g^3 \times g^5$

..... [1]

8 David goes to college by bus.
On 6 mornings out of 45, the bus is late.
In one year David goes to college by bus 180 times.

Estimate how many mornings the bus is late in one year.

..... [2]

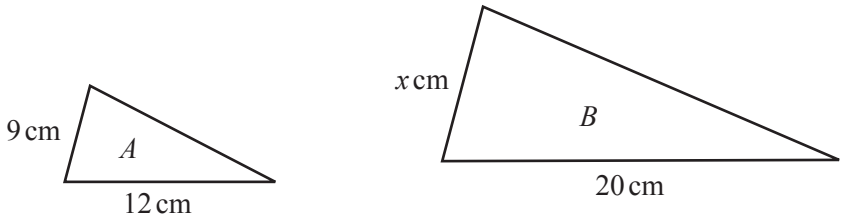
9 Here are the first five terms in a sequence.

4 11 18 25 32

Find an expression for the nth term of this sequence.

..... [2]

10



NOT TO SCALE

Triangle A and triangle B are similar.

Find the value of x.

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

11 **(a)** Write 2 600 000 in standard form.

..... [1]

(b) Write 5.8×10^{-3} as an ordinary number.

..... [1]

12 Complete the table.

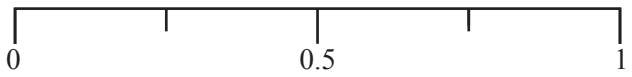
Fraction		Decimal
$\frac{1}{2}$	=	0.5
	=	0.25
$\frac{3}{10}$	=	
$\frac{2}{25}$	=	

[3]

© UCLES 2016

13 **(a)** A bag contains 16 counters.
4 of the counters are blue.
A counter is taken from the bag at random.

On the probability scale, draw an arrow (↓) to show the probability that this counter is blue.



[1]

(b) Another bag contains 5 black counters, 8 white counters, 6 green counters and 1 yellow counter.
A counter is taken from this bag at random.

Find the probability that this counter is

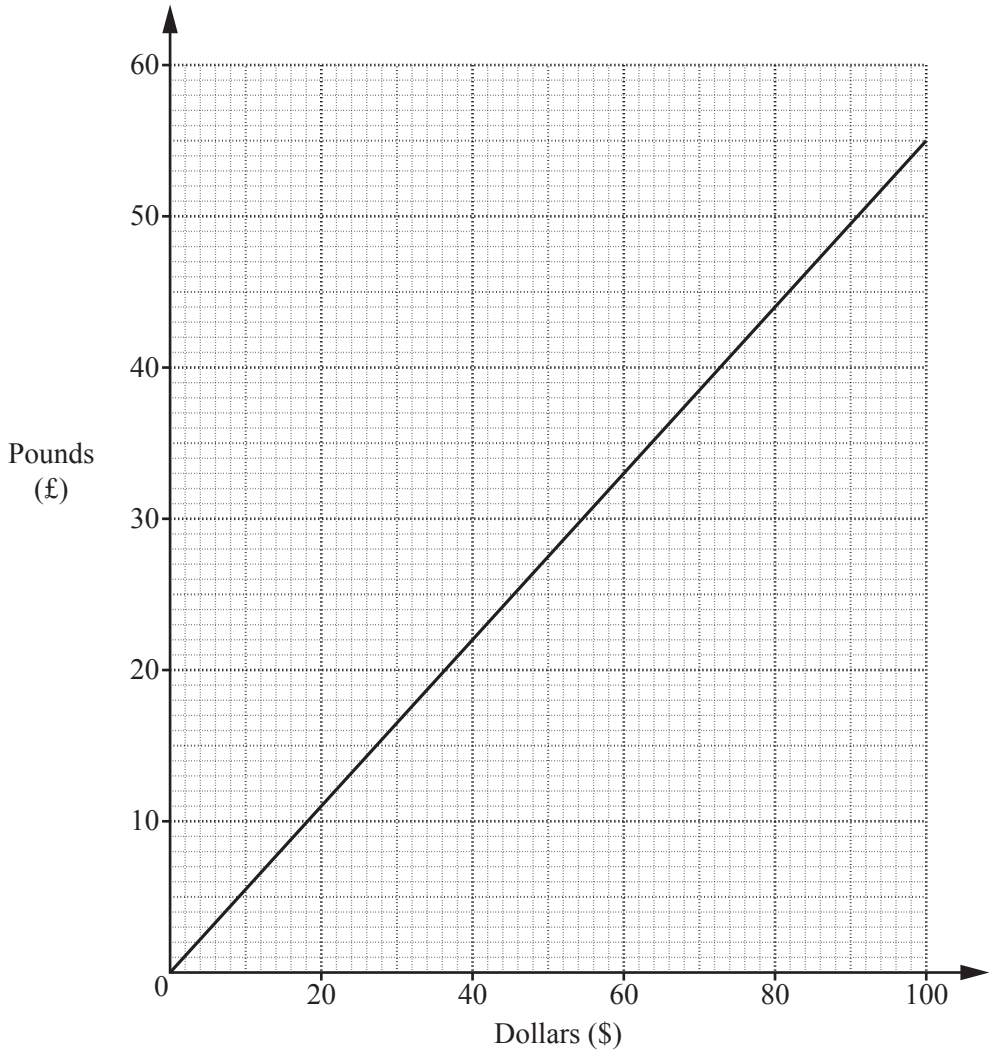
(i) white,

..... [1]

(ii) not white.

..... [1]

14 This is a graph for converting between dollars ($) and pounds (£).



(a) Use the graph to convert $80 to pounds.

£..... [1]

(b) Daniyar changes £100 to dollars.

Work out how many dollars he receives.

$..... [2]

© UCLES 2016

15 (a) $\mathbf{p} = \begin{pmatrix} 4 \\ -2 \end{pmatrix}$ $\mathbf{q} = \begin{pmatrix} -3 \\ 0 \end{pmatrix}$

Work out

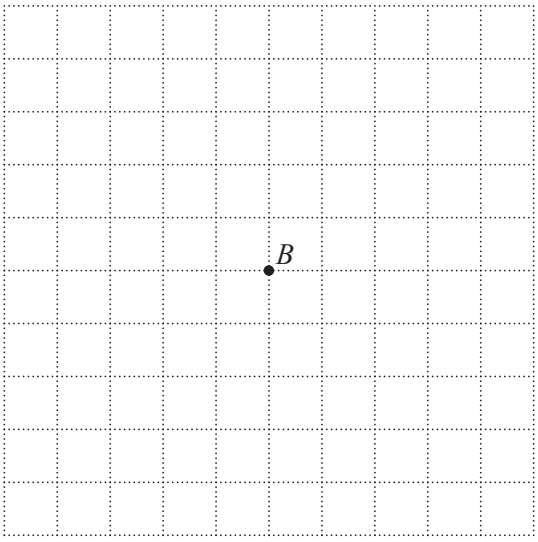
(i) $3\mathbf{p}$,

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

(ii) $\mathbf{p} - \mathbf{q}$.

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

(b)



Point B is marked on the grid and $\overrightarrow{AB} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$.

On the grid, mark point A. [1]

16 The equation of line L is $y = 4x - 3$.

Write down

(a) the co-ordinates of the point where the line L crosses the y-axis,

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

(b) the gradient of the line L,

..... [1]

(c) the equation of the line parallel to line L that passes through the origin.

..... [1]

17 A regular polygon has an interior angle of 172°.

Find the number of sides of this polygon.

..... [3]

18 **Without using a calculator**, work out $2\frac{5}{8} \times \frac{3}{7}$.
Show all your working and give your answer as a mixed number in its lowest terms.

..... [3]

© UCLES 2016

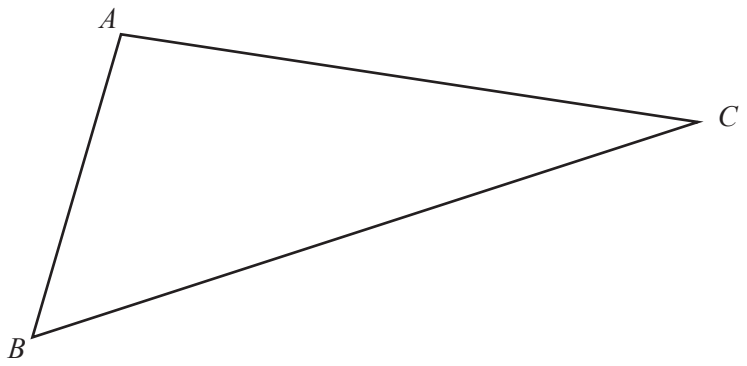
19 Solve the simultaneous equations.
Show all your working.

$$3x + 4y = 14$$
$$5x + 2y = 21$$

$x =$ .....

$y =$ ..... [3]

20 The diagram shows triangle ABC.



(a) **Using a straight edge and compasses only**, construct the bisector of angle ABC. [2]

(b) Draw the locus of points **inside** the triangle that are 3 cm from AC. [1]

21 The table shows the temperature each night for a week.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
–3 °C	1 °C	–4 °C	–2 °C	5 °C	3 °C	–1 °C

(a) Which night was the coldest?

..... [1]

(b) Find the difference between the temperature on Monday night and the temperature on Tuesday night.

.....°C [1]

(c) Find the range.

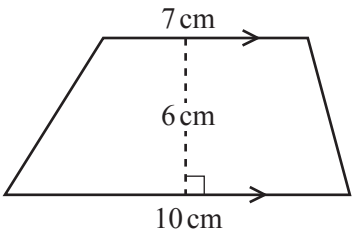
.....°C [1]

(d) Find the median.

.....°C [1]

© UCLES 2016

22



NOT TO SCALE

(a) Calculate the area of the trapezium.

..... cm^2 [2]

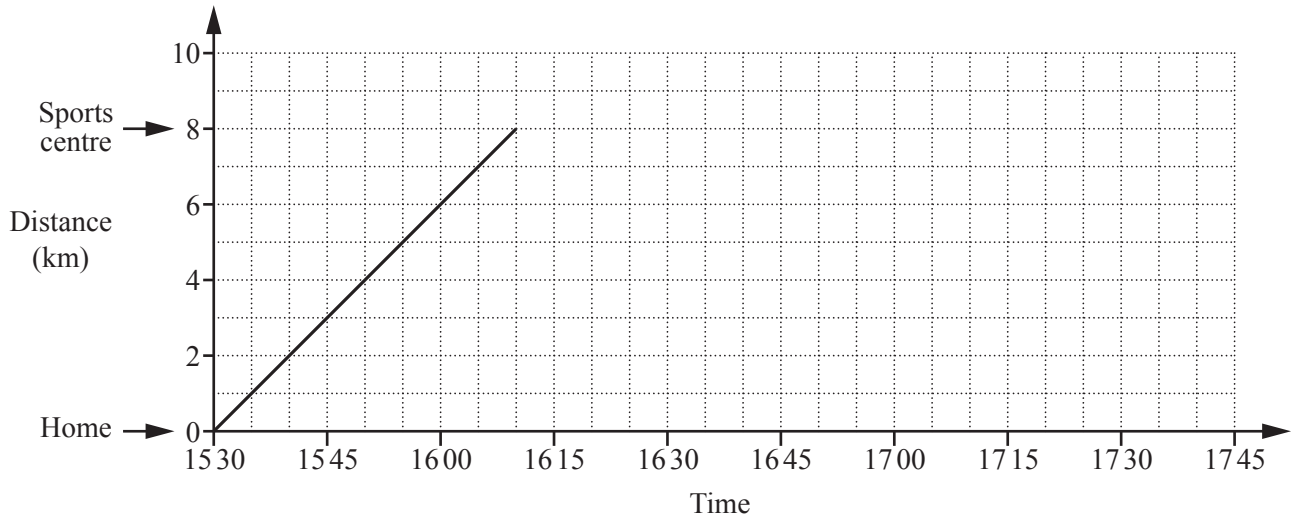
(b) The trapezium is the cross section of a prism.
The length of the prism is 12 cm.

Calculate the volume of the prism.
Give the units of your answer.

.... [2]

Question 23 is printed on the next page.

23



Sonali cycles from home to the sports centre.
The travel graph shows her journey.

(a) At what time does she arrive at the sports centre?

..... [1]

(b) Work out Sonali's cycling speed in kilometres per hour.

..... km/h [2]

(c) Sonali stays at the sports centre for 45 minutes.
She then takes 30 minutes to cycle home.

Complete the travel graph. [2]

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.

© UCLES 2016