Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTER NUMBER						CANDIDATE NUMBER				

1948407412

MATHEMATICS (US) **0444/11**

Paper 1 (Core) **May/June 2016**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments

READ THESE INSTRUCTIONS FIRST

Write your Center 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.
CALCULATORS MUST NOT BE USED IN THIS PAPER.
All answers should be given in their simplest form.
If work is needed for any question it must be shown in the space provided.

The number of points is given in parentheses [ ] at the end of each question or part question.
The total of the points for this paper is 56.

DC (LK/JG) 118175/1

Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Lateral surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

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 25 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 meters to kilometers.

..... km [1]

6 **(a)** Write down the value of 7^0.

..... [1]

(b) $7 \times 7 \times 7 \times 7 \times 7 = 7^n$

Write down the value of n.

$n =$ ..... [1]

7 Write down the mathematical name for

(a) an angle that is less than 90°,

..... [1]

(b) a five-sided polygon.

..... [1]

8 A function f is defined by $f(x) = \frac{20}{x}$, where x is a factor of 20.

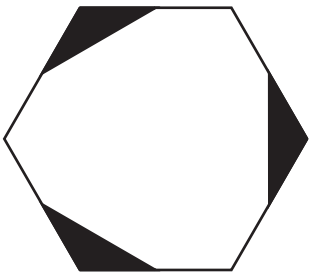
(a) Complete the list to show the domain of this function.

$\{1, \quad 2, \quad \ldots\ldots\ldots, \quad \ldots\ldots\ldots, \quad 10, \quad 20\}$ [1]

(b) For this function, explain the relationship between the domain and the range.

..... [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 dollars when the exchange rate is 1 SAR = \$0.27 .

Work out how much Omar receives.

\$ ..... [2]

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

..... [2]

12 $y = mx + b$

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

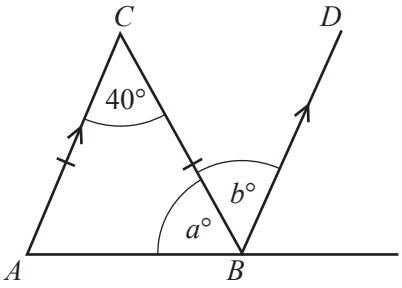
$y =$ ..... [2]

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

Solve for x.

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

14



NOT TO SCALE

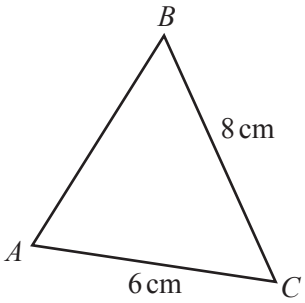
Triangle ABC is isosceles and AC is parallel to BD.

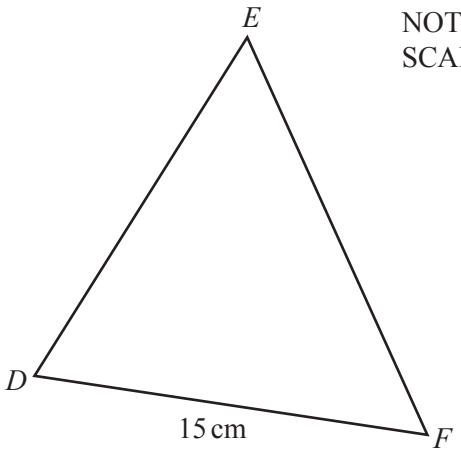
Find the value of a and the value of b.

a = ...

b = ... [2]

15 Triangle ABC and triangle DEF are similar.





NOT TO SCALE

Calculate the length of EF.

EF = ... cm [2]

16 Work out $\frac{6}{7} \div 1\frac{2}{3}$.

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]

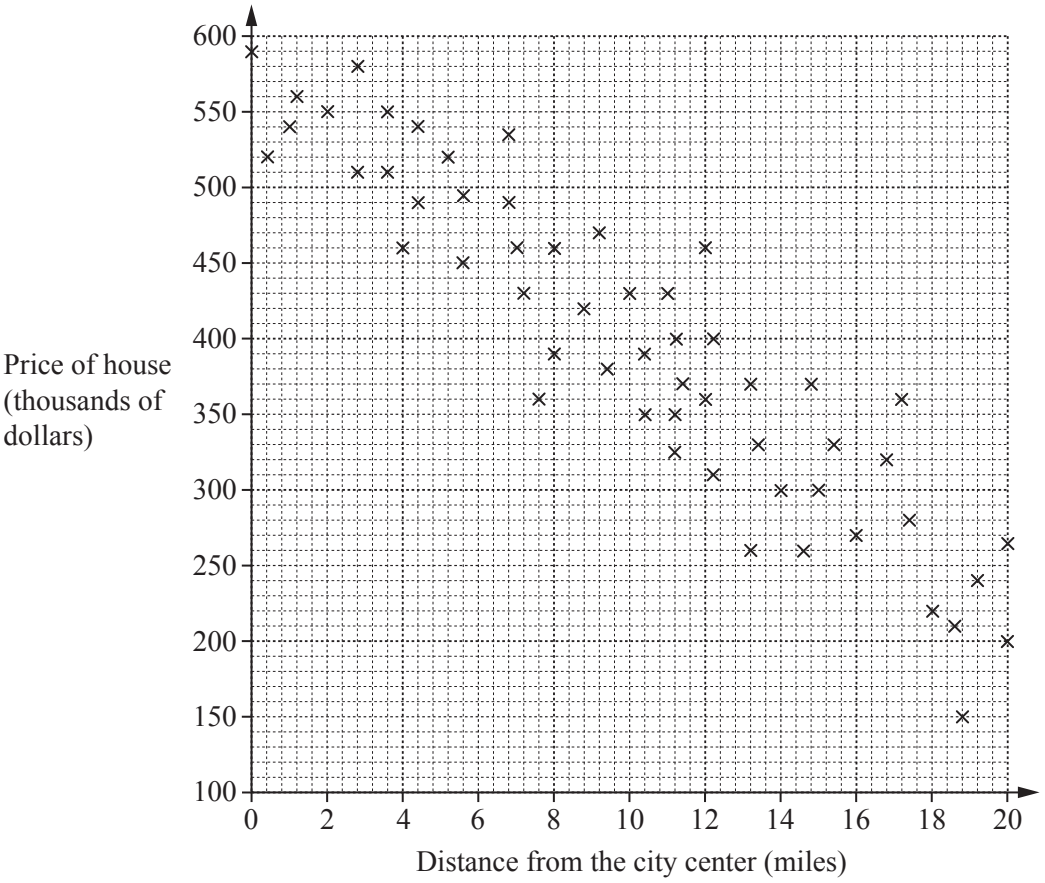
(b) 10, 7, 4, 1, …

..... [1]

(c) 1, 9, 25, 49, …

..... [1]

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



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

..... [1]

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

How close to the city center can he live?

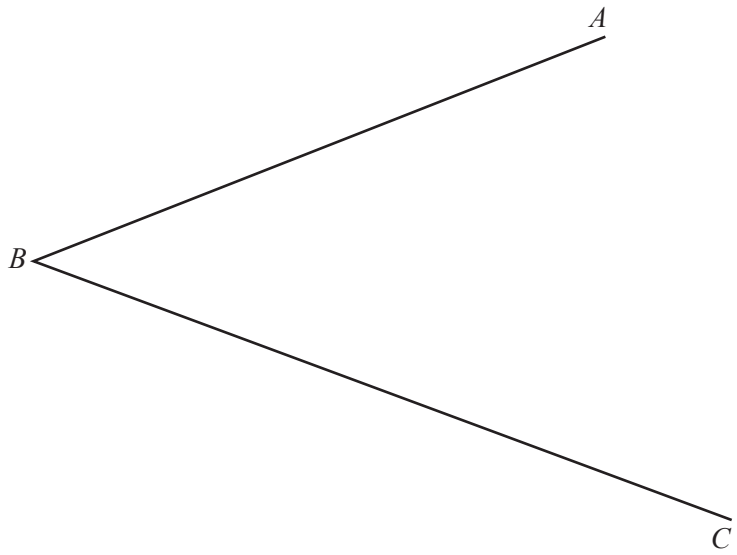
..... miles [1]

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

(ii) Estimate the price of a house that is 14 miles from the city center.

$..... [1]

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



[2]

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

[2]

[Turn over

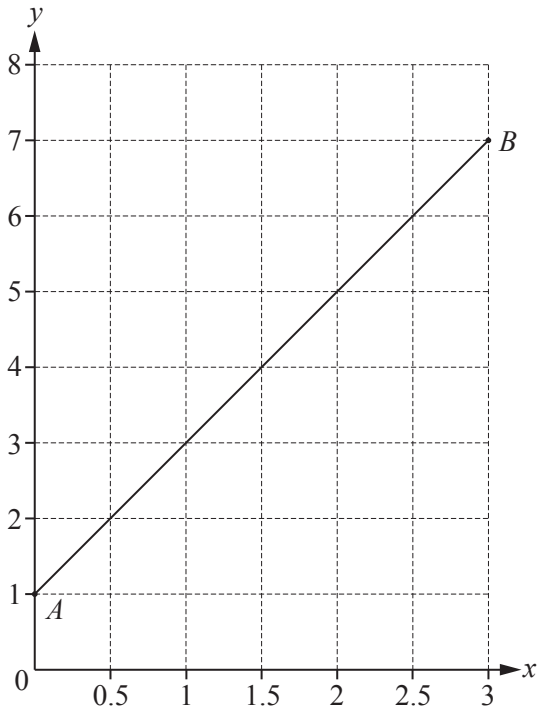
20 Solve the system of linear equations.
You must show all your working.

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

$x =$ .....

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

21 (a)



The line AB is drawn on the grid.

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

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

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

..... [2]

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

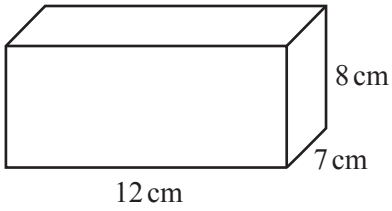
$y =$ ..... [2]

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

..... [1]

Question 22 is printed on the next page.

22 (a)



NOT TO SCALE

Work out the volume of this cuboid.

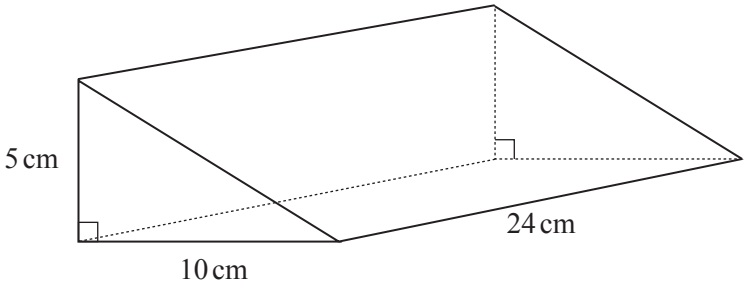
..... cm^3 [2]

(b) Another cuboid has width 6 cm, height 9 cm and volume 648 cm^3.

Work out the length of this cuboid.

..... cm [2]

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



NOT TO SCALE

Work out the volume of this prism.

..... cm^3 [3]