Cambridge Assessment International Education

Cambridge IGCSE™

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0123456789

MATHEMATICS (US) **0444/01**

Paper 1 (Core) **For examination from 2020**

SPECIMEN PAPER **1 hour**

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, center number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary work clearly.

INFORMATION

- The total mark for this paper is 56.
- The number of marks for each question or part question is shown in parentheses [ ].

This document has **14** pages. Blank pages are indicated.

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 Write down the value of

(a) 2^3,

..... [1]

(b) 2^0.

..... [1]

2 Simplify $\frac{4+8}{4\times 8}$.

Give your answer as a fraction in its lowest terms.

..... [2]

3 $p = 2 \times 10^5$

Find the value of $6p$, giving your answer in scientific notation.

..... [2]

4 **(a)** Simplify $5p^2 \times 3p^3$.

..... [2]

(b) Factor completely $2x^2 + 6xy$.

..... [2]

5

City center	11.15	12.30	13.10	13.40
Heatherton	11.25	12.40	13.20	13.50
Rykneld	11.29	12.44	13.24	13.54

The table above is part of a bus timetable.

(a) The 11.15 bus left the City center on time and arrived at Rykneld 2 minutes early.

How many minutes did it take to reach Rykneld?

..... min [1]

(b) Paulo walked to the bus stop at Heatherton and arrived at 12.56.
The next bus arrived on time.

How many minutes did Paulo wait for the bus?

..... min [1]

6 An integer n is such that $60 \leqslant n \leqslant 70$.

Write down a value of n which is

(a) a prime number,

..... [1]

(b) a multiple of 9,

..... [1]

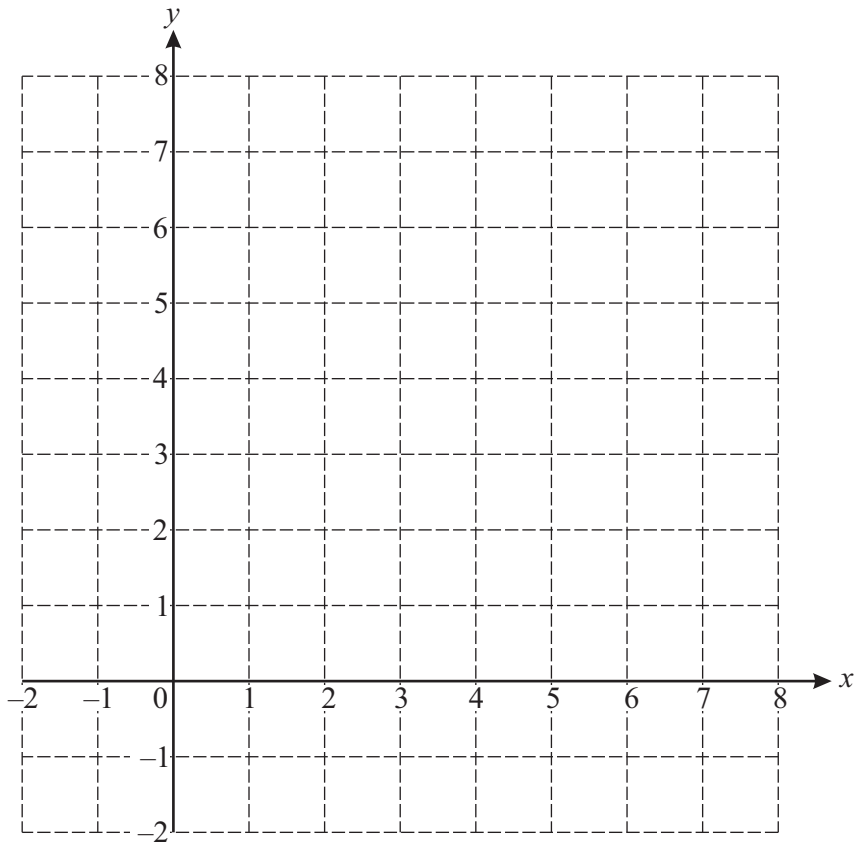
(c) a square number.

..... [1]

7 Expand the parentheses and simplify $3x^2 - x(x - 3y)$.

..... [2]

8 **(a)** Plot the points A (−1, 5) and B (3, 7) on the grid.

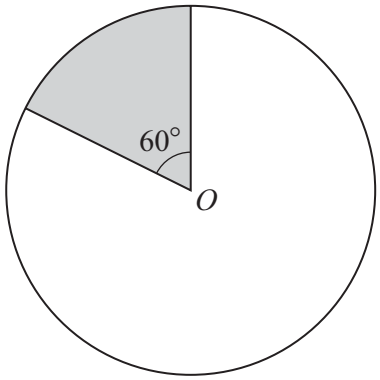


[2]

(b) Write down the coordinates of the midpoint of the line joining A and B.

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

9



NOT TO SCALE

A circle, center O, has an area of $600\,\text{cm}^2$.

Find the area of the shaded sector.

..... cm^2 [2]

10 **(a)** Find the least common multiple of 7 and 9.

..... [1]

(b) Work out $\frac{8}{9} - \frac{5}{7}$.

..... [2]

11 = < >

Choose one of the symbols given above to complete each of the following statements.

When $x = 6$ and $y = -7$, then

x ..... y

x^2 ..... y^2

$y - x$ ..... $x - y$ [3]

12 $z = 2x - y$

(a) Find z when $x = -3$ and $y = 7$.

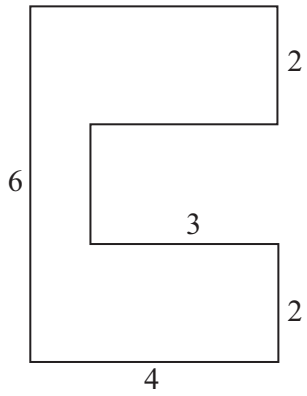
$z =$ ..... [1]

(b) Make x the subject of the formula.

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

13 All measurements in this question are in centimeters.

Three rectangles are placed together to form this shape.

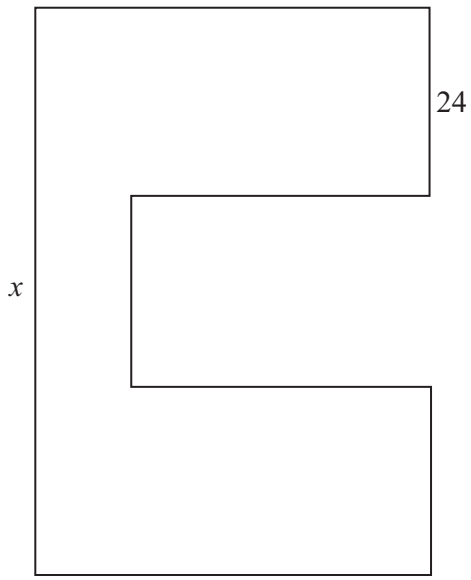


NOT TO SCALE

(a) Calculate the area of this shape.

..... cm^2 [2]

(b) The shape is projected onto a screen and the enlargement is shown.



NOT TO SCALE

Find the value of x.

x = ... cm [2]

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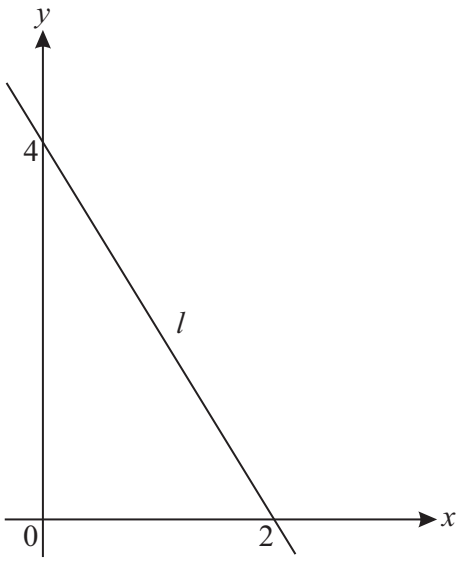


NOT TO SCALE

A straight line, l, crosses the x-axis at (2, 0) and the y-axis at (0, 4).

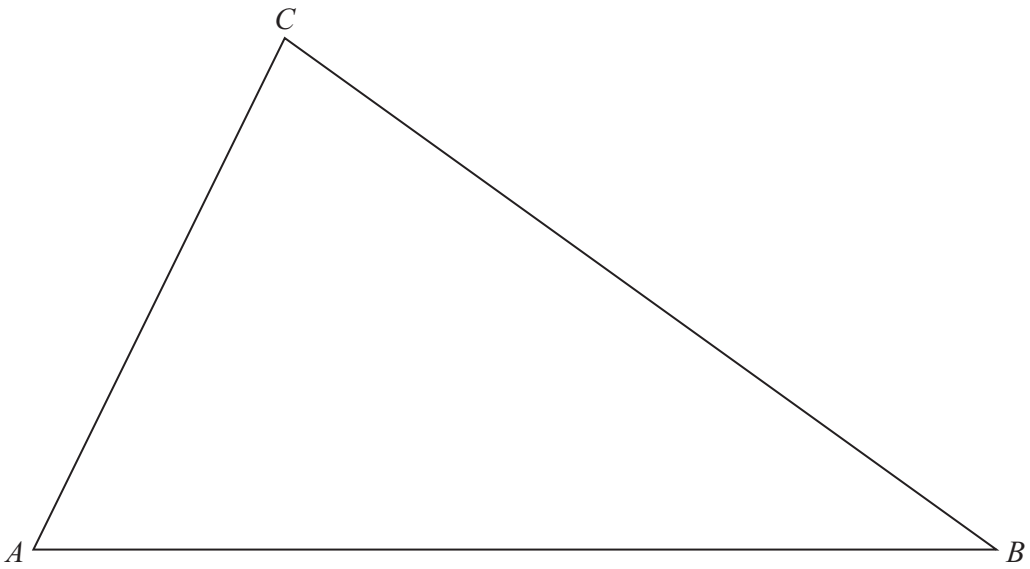
(a) Work out the slope of the line l.

..... [1]

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

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

15 The diagram shows an accurate drawing of a triangular field.
1 centimeter represents 15 meters.
Florentina walks along a straight path from A to the side BC.
The path is always the same distance from AB and AC.



(a) **Using a straight edge and compass only**, construct the bisector of angle A, that represents the line of the path.
You must show your construction arcs clearly. [2]

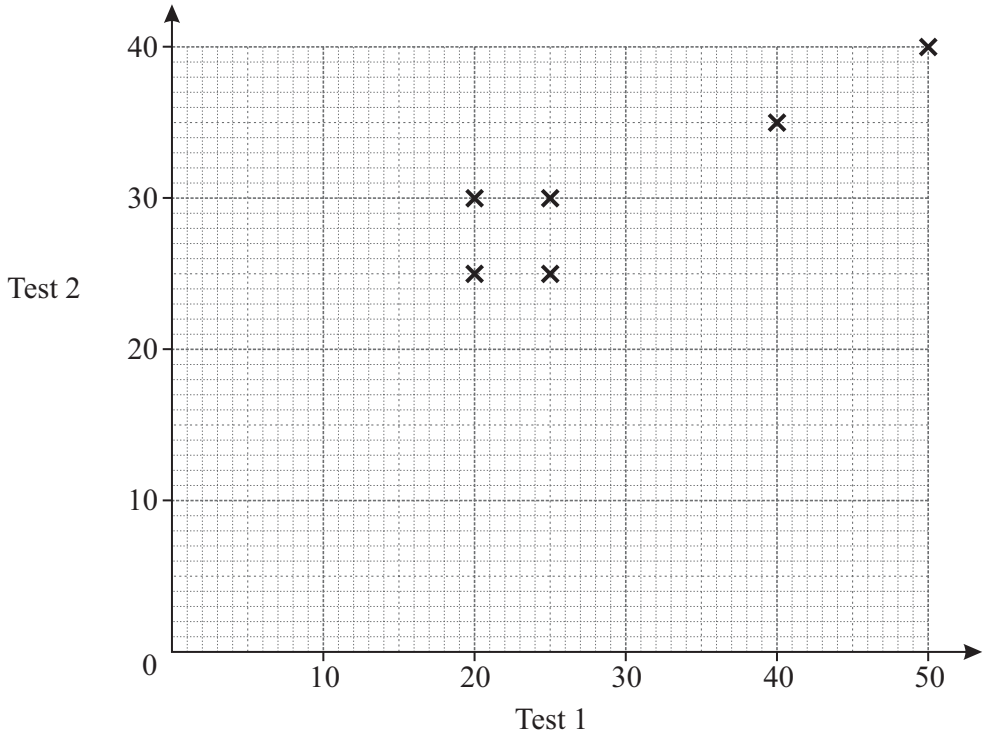
(b) The path meets BC at D.
How far, in meters, is Florentina from B when she reaches D?

..... m [1]

16

Student	A	B	C	D	E	F	G	H
Test 1	25	20	40	25	50	20	30	40
Test 2	30	25	35	25	40	30	35	40

The table shows the scores of 8 students in two mathematics tests.
The scores for students A to F are shown on the scatter diagram below.



(a) On the diagram, plot the scores for students G and H. [1]

(b) The mean for Test 1 is 31.25.

Calculate the mean for Test 2.

..... [2]

(c) Plot the mean point on the scatter diagram. [1]

(d) Draw the line of best fit on the scatter diagram. [1]

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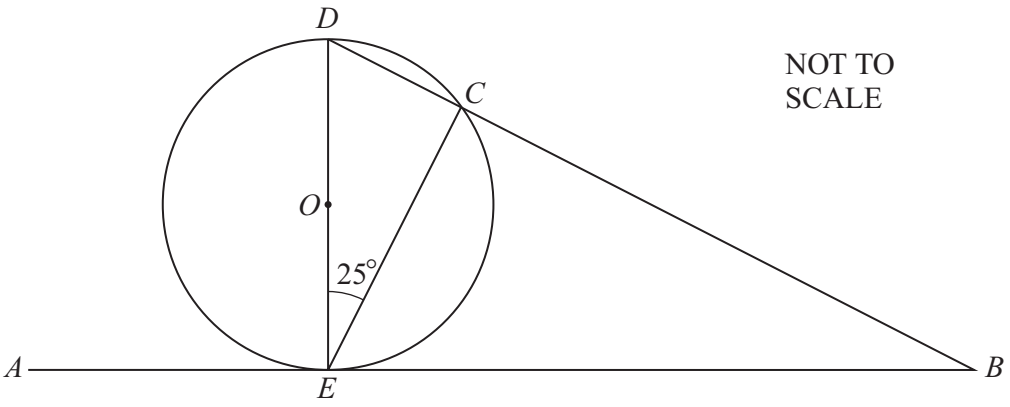


In the diagram, DE is a diameter of the circle, center O.
AEB is the tangent at the point E.
The line DCB cuts the circle at C.
Angle $DEC = 25°$.

(a) Write down the size of angle DCE.

Angle DCE = ... [1]

(b) Calculate the size of angle CDE.

Angle CDE = ... [2]

(c) Calculate the size of angle DBE.

Angle DBE = ... [2]

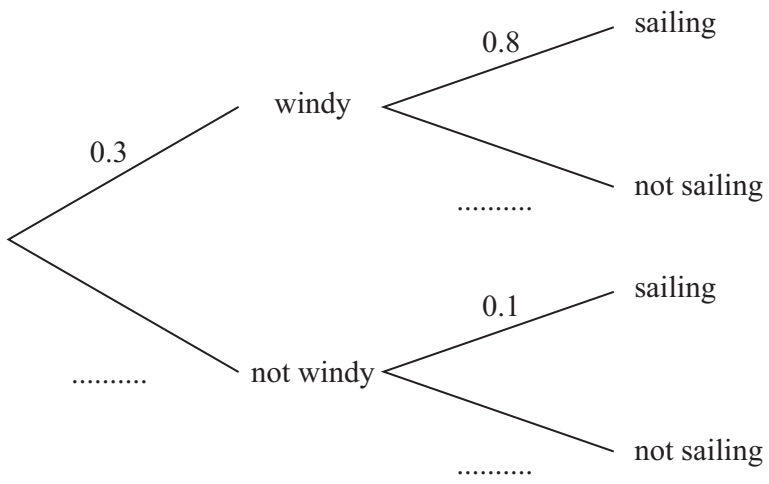
18 The probability that it is windy is 0.3 .

(a) Write down the probability that it is not windy.

..... [1]

(b) Anita plans to go sailing.
If it is windy, the probability that she will go sailing is 0.8 .
If it is not windy, the probability that she will go sailing is 0.1 .

(i) Complete the tree diagram.



[2]

(ii) Find the probability that it is windy and Anita goes sailing.

..... [2]

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