



# Cambridge IGCSE™ (9–1)

CANDIDATE  
NAME

--

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--



**MATHEMATICS**

**0980/12**

Paper 1 (Core)

**May/June 2021**

**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, centre 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.
- You should use a calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For  $\pi$ , use either your calculator value or 3.142.

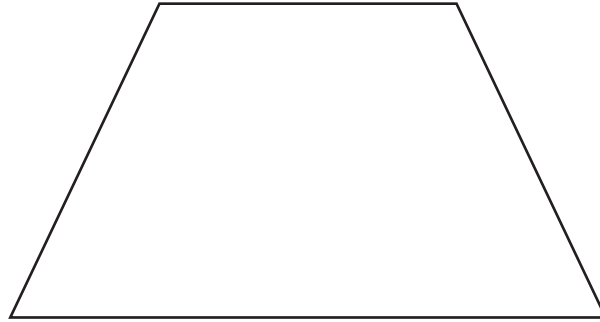
## INFORMATION

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

This document has **12** pages.

2

1



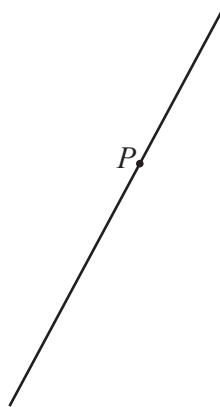
Draw the line of symmetry on this shape.

[1]

2 Write down all the factors of 42.

..... [2]

3  $P$  is a point on a line.



Draw a line through point  $P$  that is perpendicular to this line.

[1]

4

253      306      185      270      386

Calculate the mean of these numbers.

..... [2]

- 5 The formula for changing a temperature measured in Celsius ( $^{\circ}\text{C}$ ) to Fahrenheit ( $^{\circ}\text{F}$ ) is

$$F = \frac{9C}{5} + 32.$$

Use this formula to change  $65^{\circ}\text{C}$  to Fahrenheit.

.....  $^{\circ}\text{F}$  [2]

- 6 (a) **Without using a calculator**, work out  $9 + 5 \times 7 - 4 \div 2$ .  
You must show all your working.

..... [2]

- (b) Insert one pair of brackets into this statement to make it correct.

$$9 + 5 \times 7 - 4 \div 2 = 96$$

[1]

7  $\mathbf{a} = \begin{pmatrix} 5 \\ -7 \end{pmatrix}$        $\mathbf{b} = \begin{pmatrix} -2 \\ 6 \end{pmatrix}$

Work out  $\mathbf{a} - \mathbf{b}$ .

$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

- 8 Write down the number that you

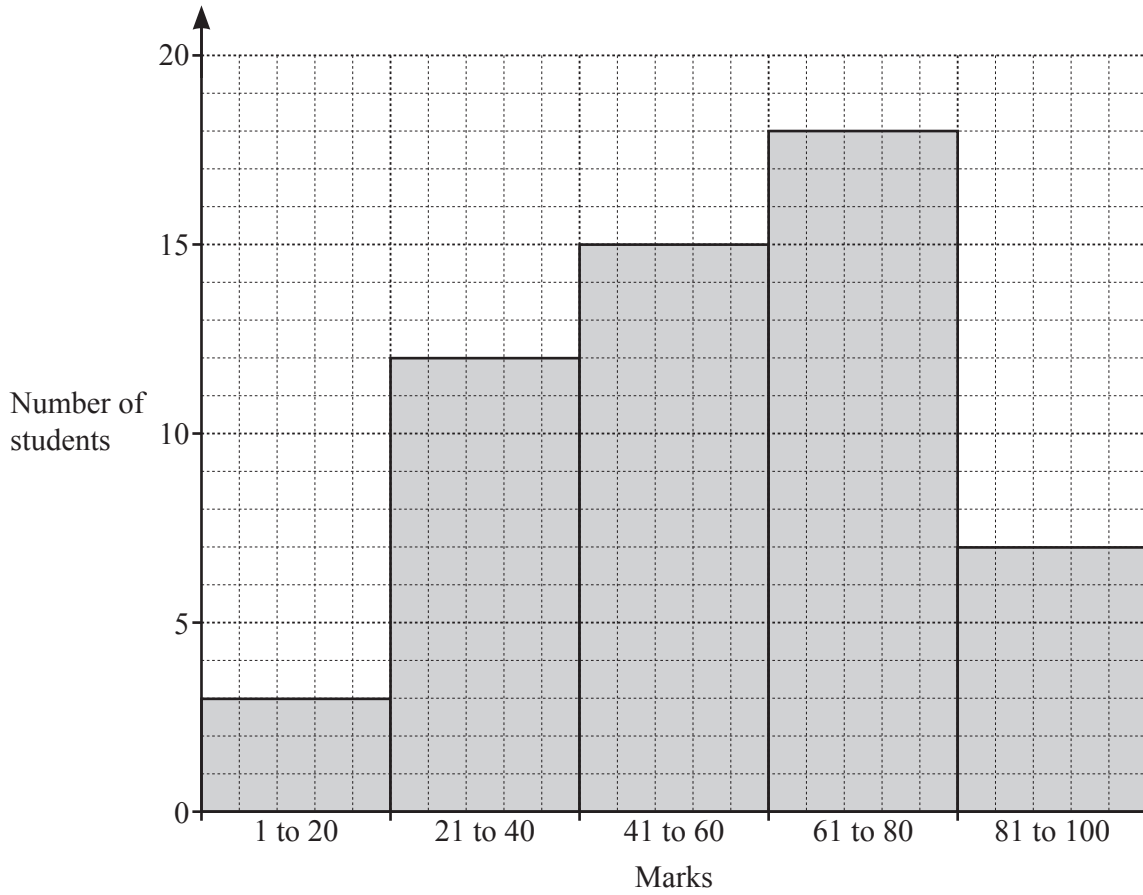
- (a) add to  $-4$  to give an answer of 9,

..... [1]

- (b) subtract from  $-9$  to give an answer of  $-4$ .

..... [1]

9



The bar chart shows the marks scored by a group of 55 students in an examination.

Work out the percentage of this group of students who scored marks from 21 to 80.

.....% [3]

10 The probability that Jane wins a game is  $\frac{7}{10}$ .

Find the probability that Jane does not win the game.

..... [1]

11 Calculate  $\sqrt[4]{0.0256}$ .

..... [1]

12 Emma has 15 mathematics questions to complete.  
The stem-and-leaf diagram shows the time, in minutes, it takes her to complete each question.

0	3	5	6	7	7	8	8
1	1	2	2	3	6	6	6
2	0						

Key: 2 | 0 = 20 minutes

Complete the table.

Mode	..... min
Median	..... min
Range	..... min

[3]

13 (a) Complete these statements.

The reciprocal of 0.2 is .....

A prime number between 90 and 100 is ..... [2]

(b)  $\frac{7}{5}$     0.6     $\sqrt{7}$     8     $\sqrt{9}$

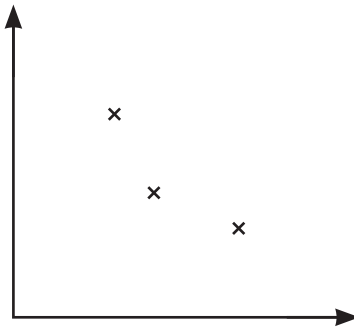
From this list, write down an irrational number.

..... [1]

14 Find the value of  $x$  when  $7^x \div 7^4 = 7^9$ .

$x =$  ..... [1]

15 (a) Henrik draws this scatter diagram.



Put a ring around the **one** correct statement about this scatter diagram.

It shows no correlation.

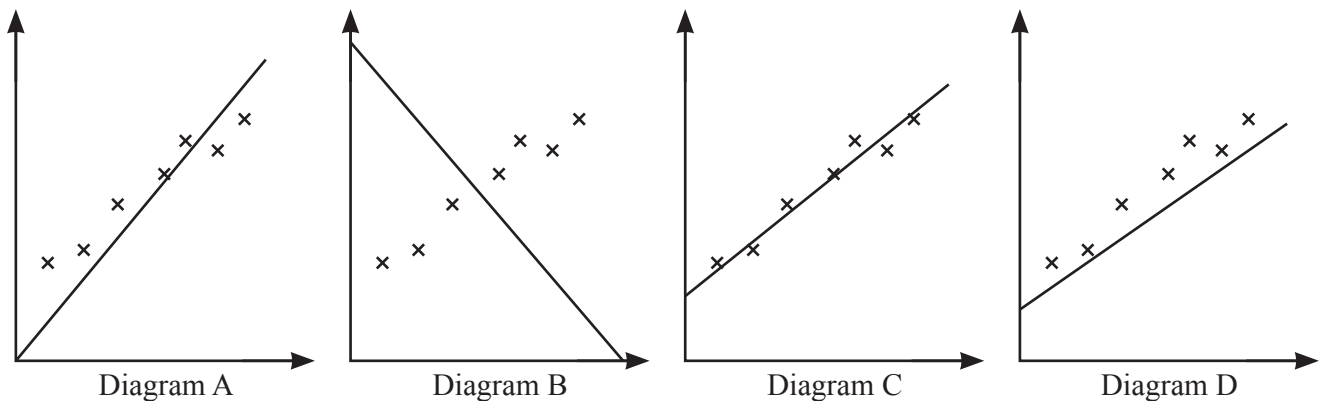
It is not possible to tell if there is correlation as there are not enough points.

It shows negative correlation.

It shows positive correlation.

[1]

(b) Each of the four scatter diagrams shows the same set of data. A line has been drawn on each diagram.



Complete the statement.

The line in Diagram ..... is the most appropriate line of best fit.

[1]

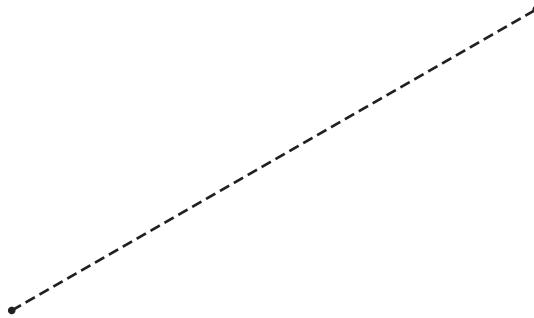
- 16 A cuboid has a square base.  
The volume of this cuboid is  $867 \text{ cm}^3$  and its height is 12 cm.

Calculate the length of one side of the square base.

..... cm [3]

- 17 A rhombus has side length 6.5 cm.  
The rhombus can be constructed by drawing two triangles.

**Using a ruler and compasses only**, construct the rhombus.  
Leave in your construction arcs.  
One diagonal of the rhombus has been drawn for you.



[2]

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

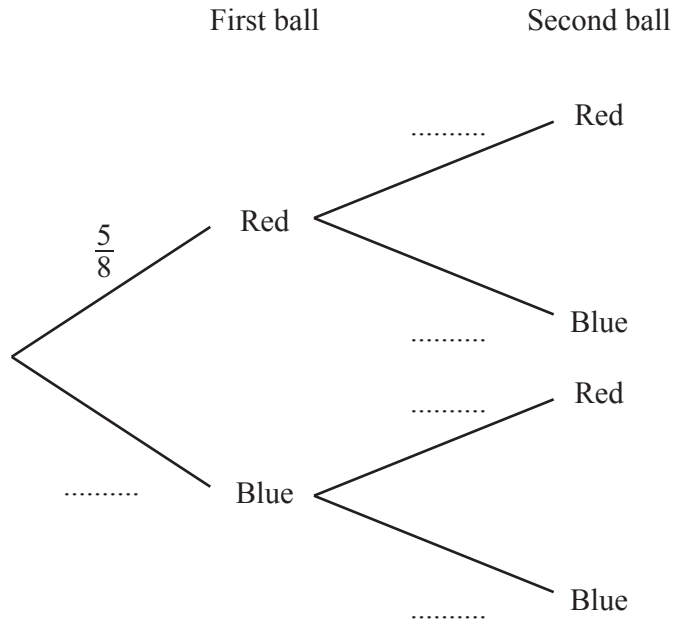
You must show all your working and give your answer as a fraction in its simplest form.

..... [3]



19 A bag contains 5 red balls and 3 blue balls.  
 Sophie takes a ball at random, notes its colour and then puts it back in the bag.  
 She does this a second time.

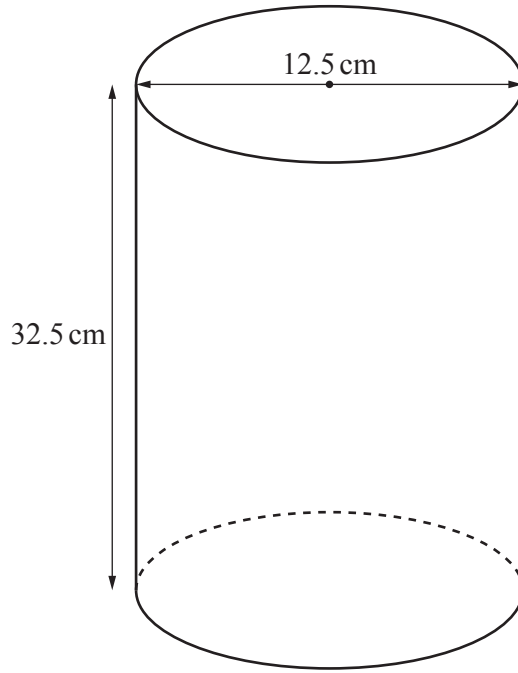
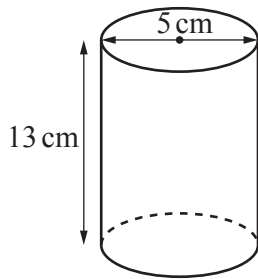
(a) Complete the tree diagram.



[2]

(b) Work out the probability that both of the balls she takes are blue.

..... [2]



NOT TO SCALE

The diagram shows two cylinders.

Show that the two cylinders are mathematically similar.

[2]

21 (a) Write 0.006 54 in standard form.

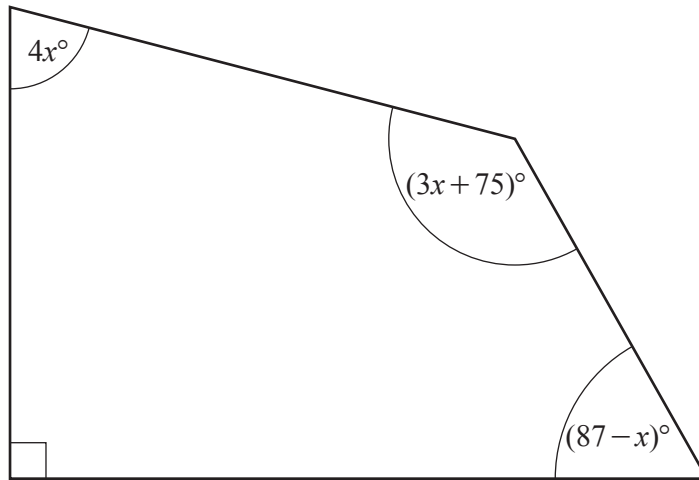
..... [1]

(b) The number  $1.467 \times 10^{102}$  is written as an ordinary number.

Write down the number of zeros that follow the digit 7.

..... [1]

22

NOT TO  
SCALE

The diagram shows a quadrilateral.

Work out the value of  $x$ .

$$x = \dots\dots\dots [4]$$

23 Work out the lowest common multiple (LCM) of 24 and 54.

$$\dots\dots\dots [2]$$

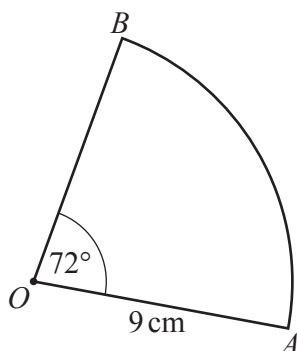
**Questions 24 and 25 are printed on the next page.**

24 Expand and simplify.

$$5(2x - 7) - 3(x - 5)$$

..... [2]

25



NOT TO SCALE

The diagram shows a sector of a circle, centre  $O$ , radius 9 cm. The sector angle is  $72^\circ$ .

(a) Calculate the length of the arc  $AB$ .

..... cm [2]

(b) Calculate the area of the sector  $AOB$ .

.....  $\text{cm}^2$  [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 Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cambridgeinternational.org](http://www.cambridgeinternational.org) after the live examination series.

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