

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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MATHEMATICS

1112/01

Paper 1

October 2019

1 hour

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
Tracing paper (optional)

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, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

NO CALCULATOR ALLOWED.

You should show all your working in the booklet.

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is 50.

This document consists of **12** printed pages.

1 Here are some words that describe parts of a circle.

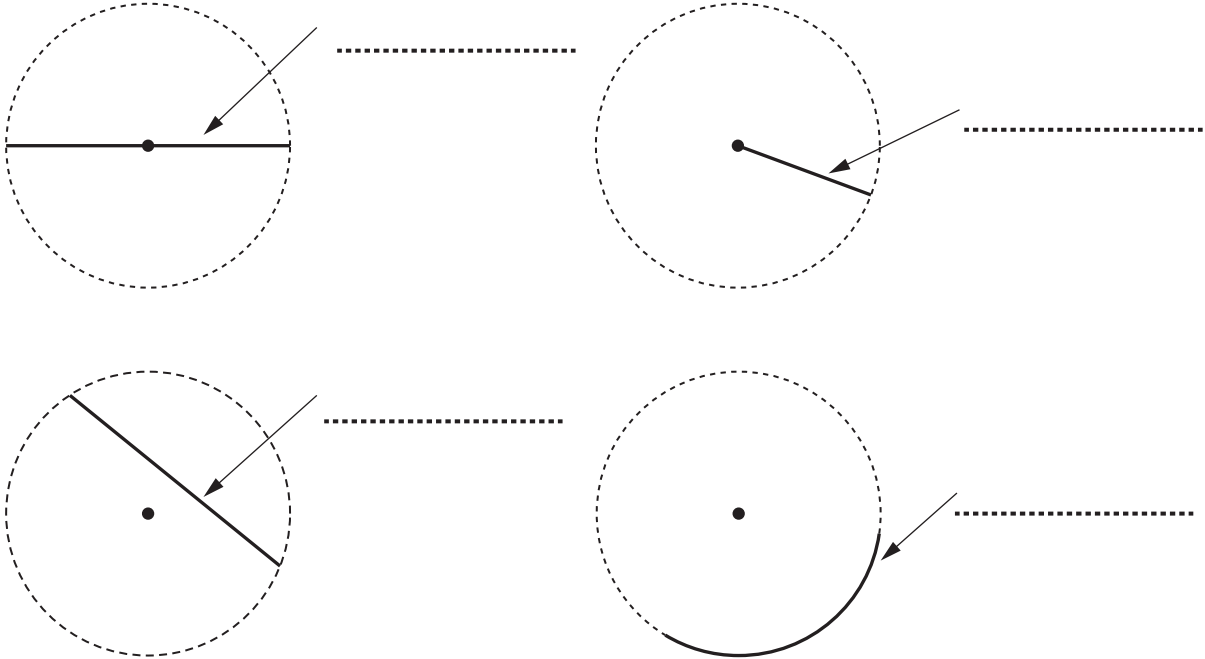
Radius

Chord

Diameter

Arc

Use these words to label the circle parts shown in these diagrams.



[1]

2 A recipe uses 3 eggs with 600 g of flour.

Find the number of eggs to use in the same recipe with 1 kg of flour.

..... [1]

3 Work out.

$$5 \times (4^2 + 2 - 12)$$

..... [1]

4 Here is a multiplication fact.

$$\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$$

Use this fact to complete these calculations.

(a) $\frac{1}{2} \div \frac{3}{4} =$

[1]

(b) $1\frac{1}{3} \times \frac{3}{4} =$

[1]

5 Pierre and Blessy are in a bike race.

(a) Blessy starts the race at 10.45 am and finishes at 2.10 pm.

Work out how long Blessy takes.
Give your answer in hours and minutes.

..... hours minutes [1]

(b) Pierre cycles 18 km in $\frac{1}{2}$ hour.

Work out his average speed.

..... km/h [1]

6 Work out.

(a) 16.8×9

..... [1]

(b) $8.76 \div 6$

..... [1]

7 Yuri designs this frequency table for recording the wingspan, L mm, of butterflies.

Wingspan, L mm	Tally	Frequency
$20 \leq L < 30$		
..... $\leq L <$		
..... $\leq L <$		
$50 \leq L < 60$		

(a) Complete the first column of the table so that all intervals have equal class width. [1]

(b) Yuri measures the wingspans, in mm, of 15 butterflies.

34 43 51 29 40 37 56 25 36 33 48 39 45 32 43

Complete the tally and frequency columns of the table to show Yuri's data. [2]

8 Here are the first three diagrams in a sequence.



Diagram 1

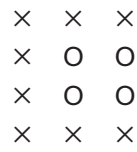


Diagram 2

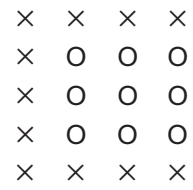


Diagram 3

(a) Draw the next diagram in this sequence on the grid.

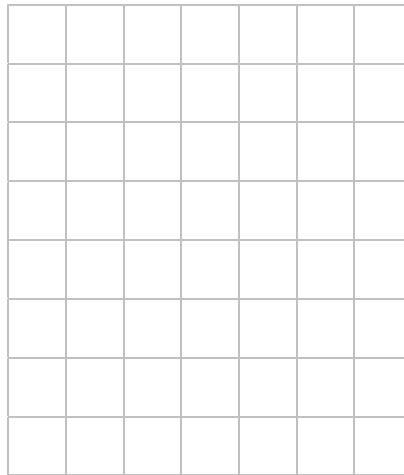


Diagram 4

[1]

(b) Explain why the number of circles in Diagram 5 will be 25

.....
 [1]

(c) Find an expression for the number of **crosses** in Diagram n .

..... [2]

9 Tick (✓) to show if these statements are true or false.

$$0.4 = 4\%$$

True

False

$$\frac{7}{20} = 27\%$$

True

False

$$\frac{1}{10} = 10\%$$

True

False

[1]

10 There are some children in a classroom.
The ratio of boys to girls is 3 : 1

(a) Work out the fraction of the children that are boys.

..... [1]

(b) There are 24 boys in the classroom.

Work out the number of girls.

..... [1]

11 Work out $2\frac{4}{5} + 3\frac{2}{3}$

Give your answer as a mixed number in its simplest form.

..... [3]

12 Put one of the operations

× or ÷

into each box to make the statements true.

$$14 \quad \boxed{} \quad 2.5 = 35$$

$$84 \quad \boxed{} \quad 0.25 = 21$$

$$7 \quad \boxed{} \quad 0.2 = 35$$

$$0.64 \quad \boxed{} \quad 0.02 = 32$$

[2]

13 Write $\frac{54}{117}$ in its simplest form.

..... [1]

14 Expand and simplify.

$$(x - 6)(x + 5)$$

..... [2]

15 Aiko records the time, in seconds, that it takes for the children in her class to swim a length of the pool in January.

1	6	8	9		
2	0	2	5	5	8
3	0	2	5	7	
4	2	4	8		
5	4	6			
6	1	7			

Key: 1 | 6 = 16 seconds

(a) Work out the median time.

..... seconds [1]

(b) Work out the range of the times.

..... seconds [1]

Aiko records the times it takes the same children to swim a length of the pool in June.

She works out that

- the median time in June is 25 seconds,
- the range of the times in June is 55 seconds.

(c) Aiko says,

‘The times vary less in June than in January.’

Tick (✓) to show if Aiko is correct or incorrect.

Correct

Incorrect

Give a reason for your answer.

.....
 [1]

16 $A(5, 8)$ and $B(3, -2)$ are two points on a coordinate grid.
 C is the midpoint of AB .

(a) Work out the coordinates of C .

(.....,) [2]

(b) B is the midpoint of AD .

Work out the coordinates of D .

(.....,) [2]

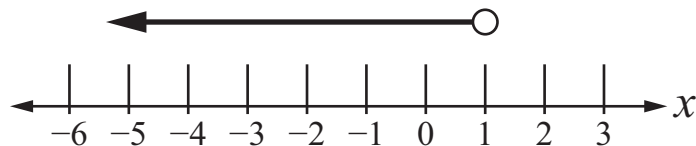
17 (a) Look at this list of numbers.

-8 -3 -1 0 7 10

Write down all the numbers from this list that satisfy the inequality $-3 < x \leq 7$

..... [1]

(b) Write down the inequality shown on the number line below.



..... [1]

18 (a) Complete the table.
The first one has been done for you.

Number	Rounded to 2 decimal places	Rounded to 2 significant figures
0.03864	0.04
3.0249

[2]

(b) Complete this table by writing a possible number in the first column.

Number	Rounded to 1 significant figure	Rounded to 2 significant figures
.....	4000	4000

[1]

19 Here is an expression.

$$2xy - 12 + 7y - 5x$$

Write down the third term of this expression.

..... [1]

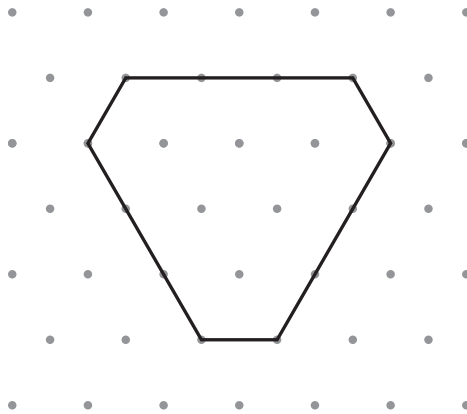
20 (a) Convert 0.003 m^3 into cubic centimetres.

..... cm^3 [1]

(b) Convert your answer to part (a) into litres.

..... litres [1]

21 This shape is drawn on a triangular grid.



Complete the missing numbers.

Number of lines of symmetry =

Order of rotational symmetry =

[2]

22 The sum of three **consecutive** whole numbers is 54

Work out the three numbers.

....., and [1]

23 Write the missing numbers in this multiplication grid.

	×		$\frac{2}{5}$
$\frac{1}{5}$		0.2	
			2

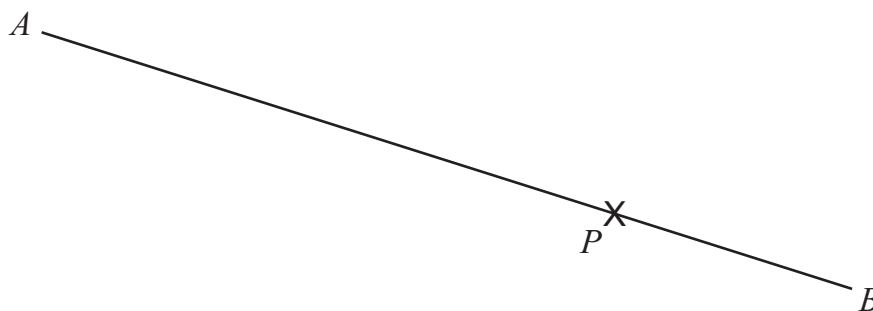
[2]

24 Estimate $\sqrt[3]{120}$ to the nearest whole number.

..... [1]

25 Use a ruler and compasses to construct the perpendicular to the line AB passing through point P .

Do **not** rub out your construction lines.



[2]

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