

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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MATHEMATICS

1112/01

Paper 1

April 2018

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.

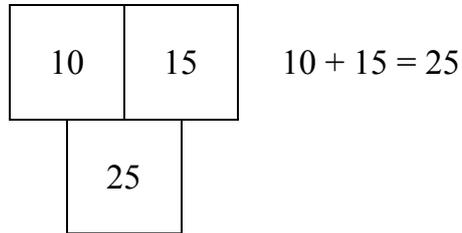
The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is 50.

This document consists of **16** printed pages.

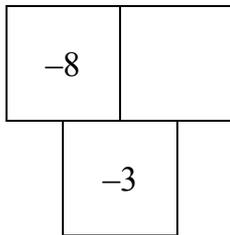
1 Here is the rule for these number grids.

Add the two top numbers to get the number below.



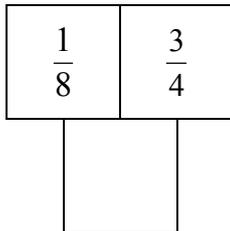
Complete these grids.

(a)



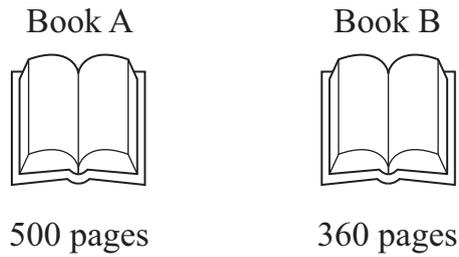
[1]

(b)



[1]

2 Here are two books.



Lily reads 32% of Book A.
Safia reads 40% of Book B.

Tick (✓) to show who reads the most pages.

Lily Safia

You must show your working.

[2]

3 A bottle of juice holds 1.5 litres.
Ahmed pours all the juice into glasses.
He pours 250 millilitres into each glass.

Work out how many glasses Ahmed uses.

..... [2]

4 A teacher asks her class to work out the answer to

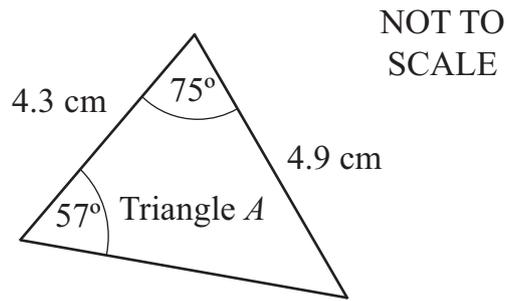
$$8 + 12 \div 4$$

Mike says that the answer is 5
He is wrong.

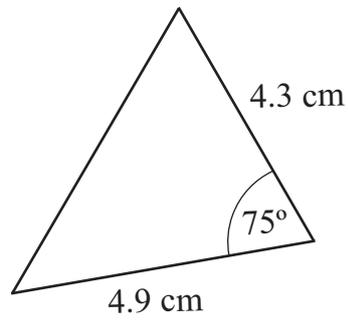
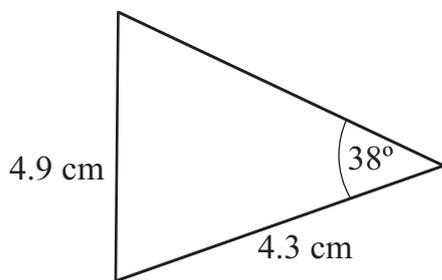
Explain why Mike is wrong.

.....
..... [1]

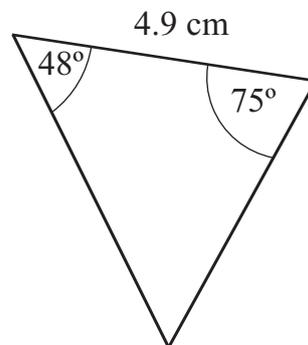
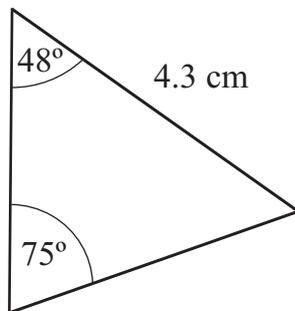
5 Triangle A is shown in the diagram.



Draw a ring around the triangles below that are congruent to Triangle A .



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[2]

6 Work out

(a) 1.5×0.8

..... [1]

(b) $15 \div 0.06$

..... [1]

7 There are 280 students in Year 10

Half of the students are boys.

155 of the students get a grade of A, B or C in their mathematics test.

61 girls get a grade of D, E or F.

(a) Complete the table.

Grade in mathematics test for Year 10 students

	Grade A, B or C	Grade D, E or F	Total
Boys			
Girls			
Total			280

[2]

(b) A student is chosen at random from Year 10

Write down the probability that the student is a girl with a grade D, E or F.

..... [1]

8 Here is an expression.

$$3a + 4 + 7b$$

Tick (✓) the **third** term in this expression.

+

$3a$

4

7

$7b$

[1]

9 Use the laws of arithmetic to write numbers in the boxes to make these calculations correct.

$$4.5 \times 8 = 4.5 \times 2 \times 2 \times \boxed{}$$

$$8.84 \times 25 = 8.84 \times 100 \div \boxed{}$$

$$6.8 \times 5 = 6.8 \times \boxed{} \div 2$$

[2]

10 (a) Factorise completely.

$$2x^2 - 6x$$

..... [2]

(b) Make r the subject of the equation

$$h = 2(r - 4)$$

$r =$ [2]

11 Here is a division.

$$7.1 \div 8 = 0.8\Box75$$

One digit is missing.

Work out the digit that is missing.

$\Box =$ [1]

12 Here is a road sign in the USA.



Draw a ring around the distance, in kilometres, that is closest to 10 miles.

4 km 6 km 12 km 16 km 22 km

[1]

13 There are 96 children in a room.
40 of them are girls.

Find the fraction of the children that are **boys**.
Write your answer in its simplest form.

..... [1]

14 Expand and simplify.

$$(x - 2)(x + 8)$$

..... [2]

15 Blessy collects information to investigate this statement.

Boys in my school play more sport each week than girls.

(a) Tick (✓) the **two** items that are most relevant to her investigation.

Age of student

Gender of student

Time spent doing sport each week

Favourite sport

[1]

(b) Blessy collects data from ten of her friends.

Explain why she may not get reliable results from her data.

.....
 [1]

16 (a) Write down the value of $\sqrt{225}$

..... [1]

(b) Draw a ring around the best estimate to the cube root of 100

3.2 4.6 10 33

[1]

17 Work out

$$0.036 \times 10^5 = \dots\dots\dots$$

$$470 \times 10^{-2} = \dots\dots\dots$$

$$2 \div 10^{-4} = \dots\dots\dots$$

[2]

18 The term-to-term rule of a sequence is multiply by 3
The fourth term of the sequence is 54

Work out the first term of the sequence.

..... [1]

19 A bath has a volume of 0.25 m^3 .

Convert 0.25 m^3 to cm^3 .

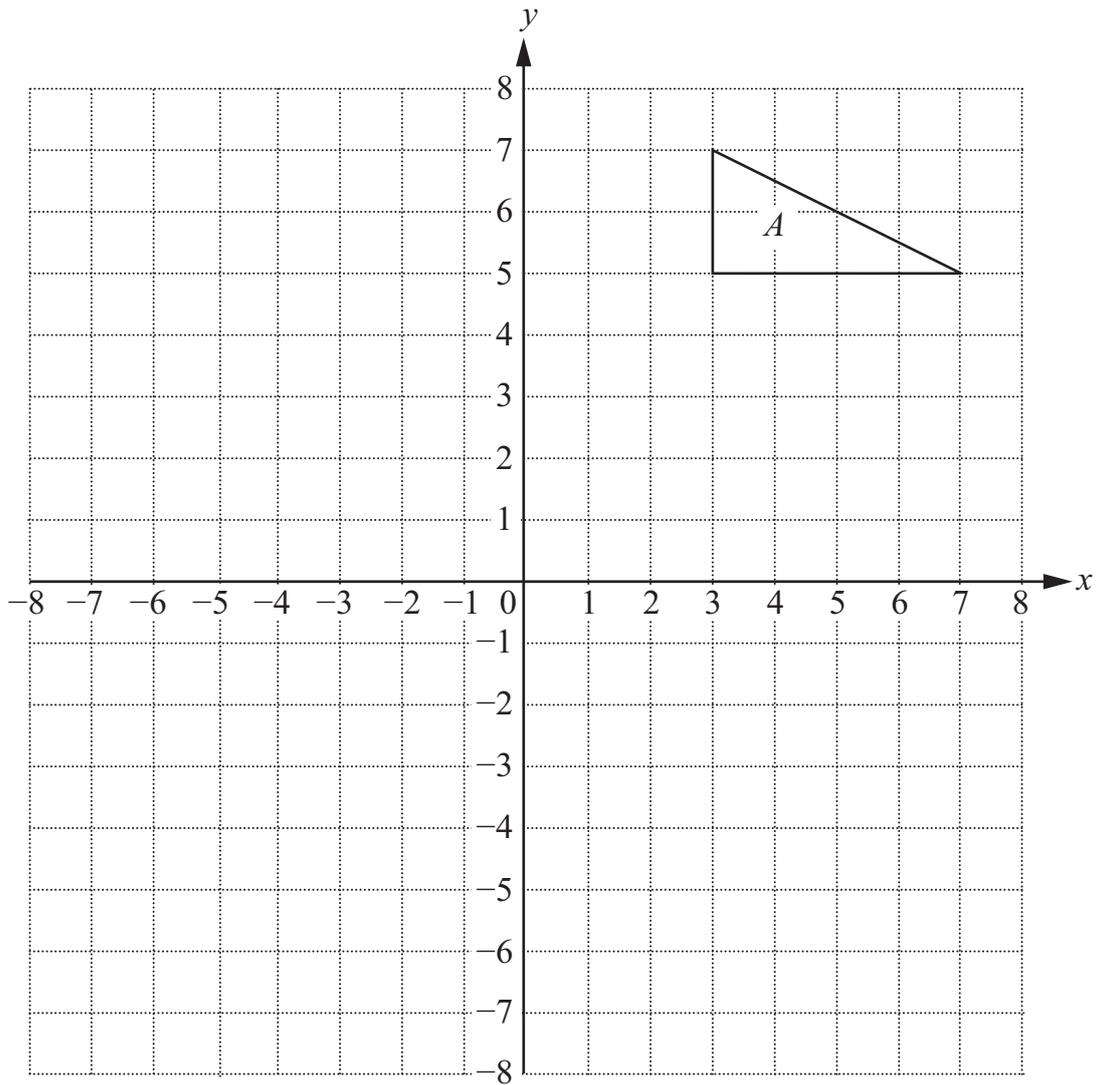
..... cm^3 [1]

20 Work out the value of m in this calculation.

$$m^{-2} = \frac{1}{9}$$

$m =$ [1]

21 The diagram shows triangle A drawn on a grid.



- (a) Reflect triangle A in the line $y = 2$
Label the reflection B .

[1]

- (b) Reflect triangle B in the line $x = 1$
Label the reflection C .

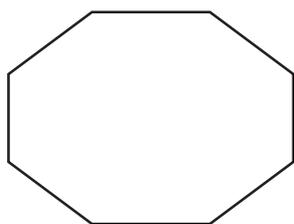
[1]

A rotation will map triangle C back onto triangle A .

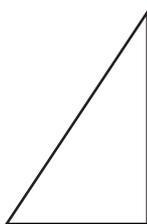
- (c) Find the coordinates of the centre of this rotation.

(..... ,) [1]

22 (a) The diagram shows some two-dimensional shapes.



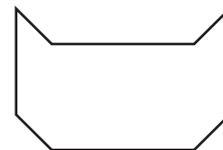
Shape A



Shape B



Shape C



Shape D

Complete each of these sentences.

The first sentence has been completed for you.

Shape A has 2 line(s) of symmetry and rotational symmetry of order 2

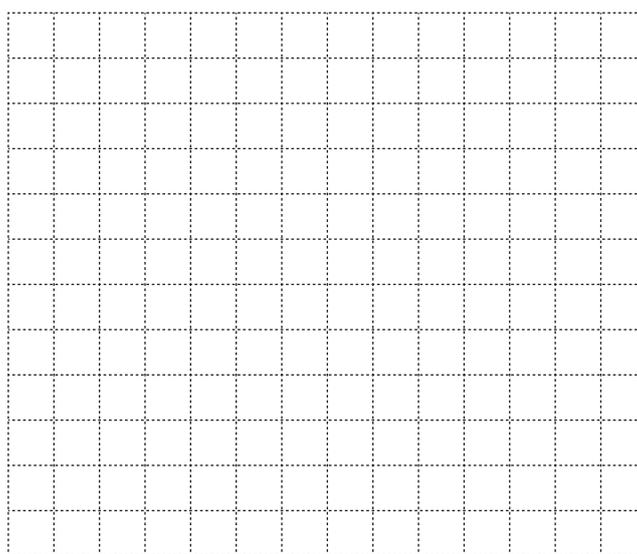
Shape B has line(s) of symmetry and rotational symmetry of order

Shape C has line(s) of symmetry and rotational symmetry of order

Shape D has line(s) of symmetry and rotational symmetry of order

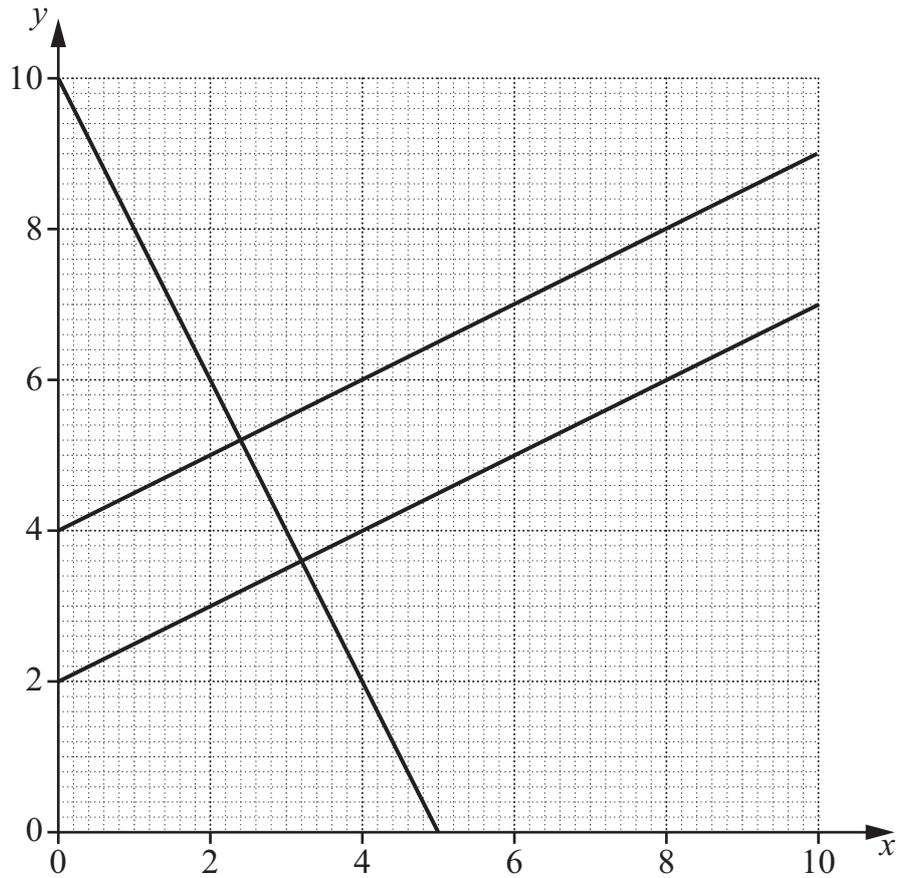
[2]

(b) Draw a two-dimensional shape on the grid that has 4 lines of symmetry and rotational symmetry of order 4



[1]

23 The lines with equations $2y = x + 4$, $2y = x + 8$ and $2x + y = 10$ are shown on the grid.



(a) Use the graph to solve these simultaneous equations.

$$2x + y = 10 \quad \text{and} \quad 2y = x + 4$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [2]$$

(b) Draw the line $2x + y = 6$ on the grid.

[2]

24 The ratio of boys to girls in a school is

$$\text{boys : girls} = 4 : 3$$

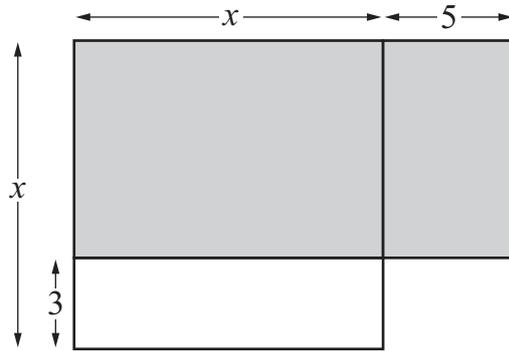
One day, 18 girls are absent from school.

This represents 5% of all the girls in the school.

Calculate the **total** number of students in the school.

..... [3]

- 25 The diagram shows a shape with all side lengths measured in centimetres. All the angles are right angles.



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Write an expression, in terms of x , for the total shaded area.

..... cm^2 [2]

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