



FOUNDED 1900

THE ENGLISH SCHOOL
A SECOND CENTURY OF EXCELLENCE

END-OF-YEAR-EXAMINATIONS

YEAR 1 MATHEMATICS MATHS FRAMEWORKING BOOKS 1.3 & 2.3

Time allowed: 2 hours

Instructions to candidates

In the boxes below write your name, surname and form.
Answer the questions in the spaces provided.
Without sufficient working, correct answers may be awarded no marks.

Information to candidates

This paper has 30 questions.
There are 16 pages in this question paper.
Full marks may be obtained for answers to all questions.
The total marks for this paper is 120.
The marks for each question is shown in round brackets, e.g. (2)

Calculators are not allowed.

Advice for candidates

Write your answers neatly and in good English.
Work steadily through the paper.
Do not spend too long on one question.
Show all stages in any calculations.

Materials required for the paper

Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
Tracing paper may be used.

- (1) Write down the order of rotational symmetry and the number of lines of symmetry of the following car logo.



Order of rotational symmetry

Number of lines of symmetry

(2 marks)

- (2) Complete the missing amounts, for the following bank statement:

Date	Details	Debit (£)	Credit (£)	Balance
30-4-2017	Opening balance			£972.83
1-5-2017	Wage		£319.71	£1292.54
6-5-2017	Transfer to savings	£750		£542.54
20-5-2017	H&M	£62.87		£
25-5-2017	Gift from grandma		£	£658.92
31-5-2017	Closing balance			£658.92

(2 marks)

- (3) (a) Convert the following fraction into a mixed number.

$$\frac{36}{7}$$

(1)

- (b) Convert the following mixed number into an improper fraction.

$$5\frac{7}{11}$$

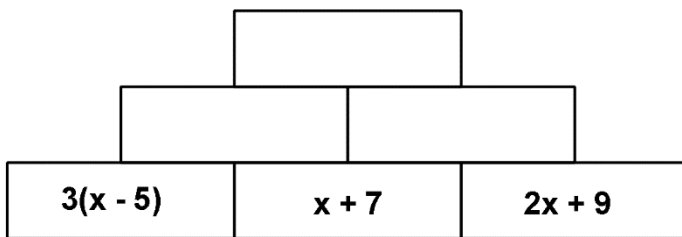
(1)

(2 marks)

- (4) A school has 1050 pupils. The ratio of girls to boys is 4 : 3. Find the number of girls in the school.

(2 marks)

- (5) The following is an algebra wall. The expression in each brick is the sum of the expressions in the two bricks below it. Find an expression for the term in the top brick.

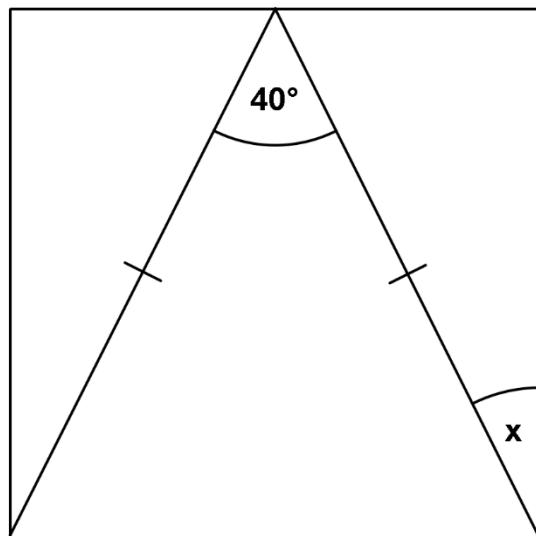


(2 marks)

- (6) Find three numbers that have a mean of 7 and a median of 5.

(2 marks)

- (7) The following shape is made up of an isosceles triangle that is enclosed in a square. It is not drawn to scale. Find the value of x .

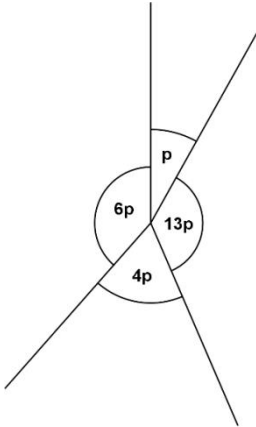


(2 marks)

- (8) The price of a car is decreased by 6%. It originally cost £15 366. Work out the reduced price.

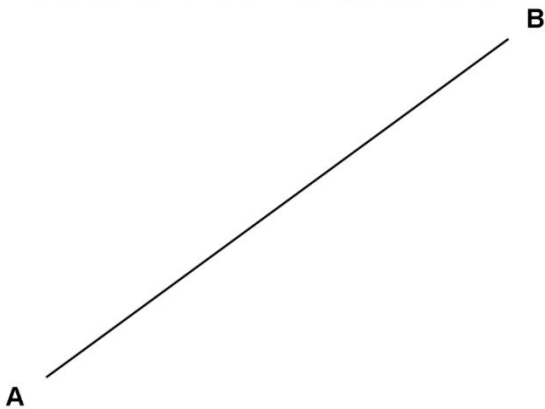
(2 marks)

- (9) Find the value of p below.



(2 marks)

- (10) Construct the perpendicular bisector of the line AB below. Do not rub out your construction lines.



(2 marks)

(11) Work out the following showing all steps in each calculation.

(a) $81 \div (18 - 21) =$

.....

(1)

(b) $15 + (-7 \times 11) =$

.....

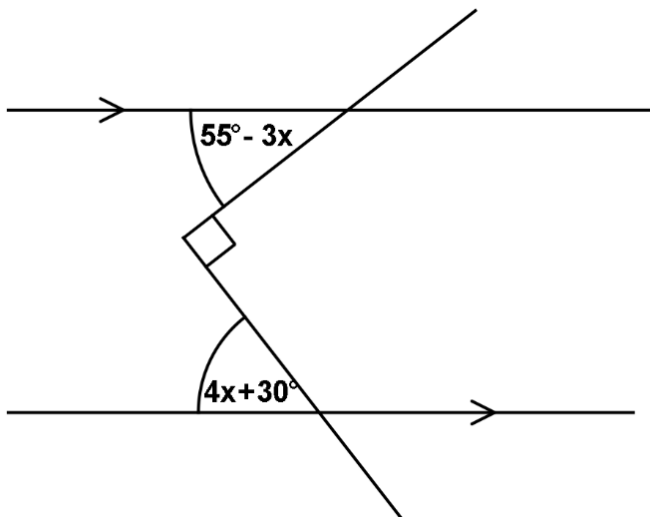
(1)

(2 marks)

(12) An electrician uses this formula to find the cost (£ C) when he is called out for an emergency $C = 50h + 35$.
Given that h is the number of hours the job takes, work out the cost, if the job takes 15 minutes to complete.

(3 marks)

(13) Calculate the value of x in the following diagram. It is not drawn to scale.



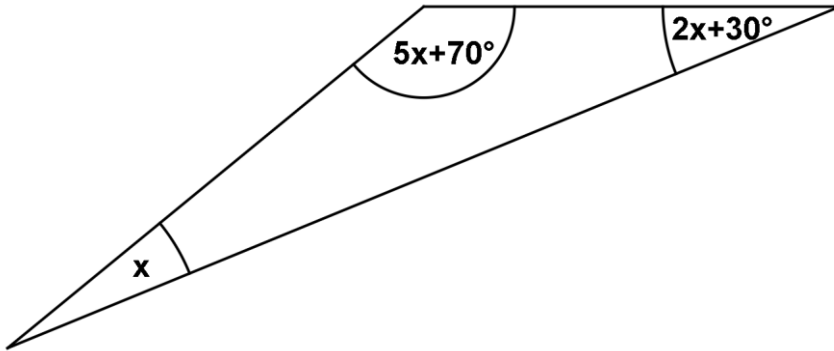
(3 marks)

(14) Complete the table below:

Shape	Number of faces	Number of edges	Number of vertices
Square based pyramid			
Hexagonal Prism			

(3 marks)

(15) Find the value of x and use it to find the size of the obtuse angle in the triangle below. The diagram is not drawn to scale.



(3 marks)

(16) Convert each area and volume to the units given in brackets:

(a) 17.1 m^2 (cm^2) (1)

(b) 0.027 ha (m^2) (1)

(c) 0.73 m^3 (ℓ) (1)

(3 marks)

(17) Work out the answers to the following:

(a) $(-16) - (-40)$ (1)

(b) $-37 - 18 + (-11)$ (1)

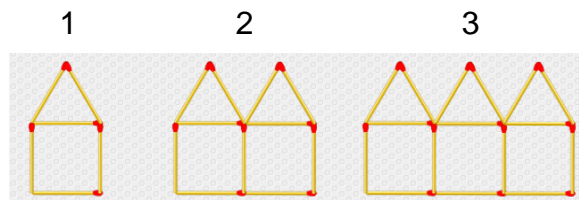
(c) -7×-32 (1)

(d) 21×-9 (1)

(4 marks)

(18) Look at the sequence of numbers based on this pattern of matchsticks.

Term Number



Number of matchsticks

6	11	16
---	----	----

(a) Work out the n^{th} term for this pattern.

(1)

(b) Work out the number of matchsticks in the 60^{th} term in this sequence.

(1)

(c) Given that a pattern of matchsticks uses 1001 matchsticks, find which term number this is.

(2)
(4 marks)

(19) Work out the following:

(a) $0.07 \div 1000 =$ (1)

(b) $0.9 \times 0.005 =$ (1)

(c) $4000 \times 0.0004 =$ (1)

(d) $0.2 \div 0.0002 =$ (1)

(4 marks)

(20) Work out the following leaving your answer as a mixed number. Simplify your answers where appropriate.

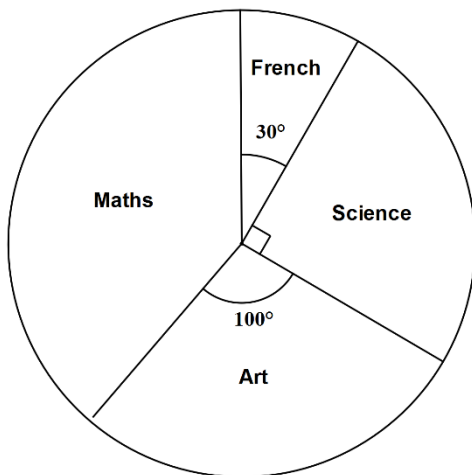
(a) $7\frac{5}{12} + 1\frac{1}{3} =$

(2)

(b) $6\frac{1}{5} - 2\frac{3}{4} =$

(2)
(4 marks)

(21) Pupils in a year group were asked which subject they liked the most. The results are shown in the pie chart below. Six pupils liked French the most.



(a) How many pupils liked Maths the most?

.....

.....

.....

.....

.....

.....

(3)

(b) What fraction liked Art the most? Simplify your answer.

.....

(1)

(c) How many pupils were surveyed in total?

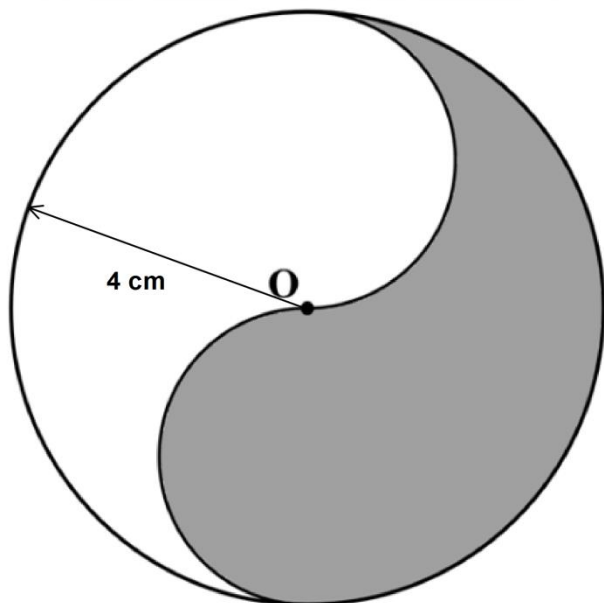
.....

.....

(1)

(5 marks)

- (22) The following shape is made up of circles. It is not drawn to scale. The radius of the large circle is 4 cm as shown on the diagram. The centre of the circle is at **O**. For any calculations leave your answer in terms of π .



(a) Find the perimeter of the shaded region.

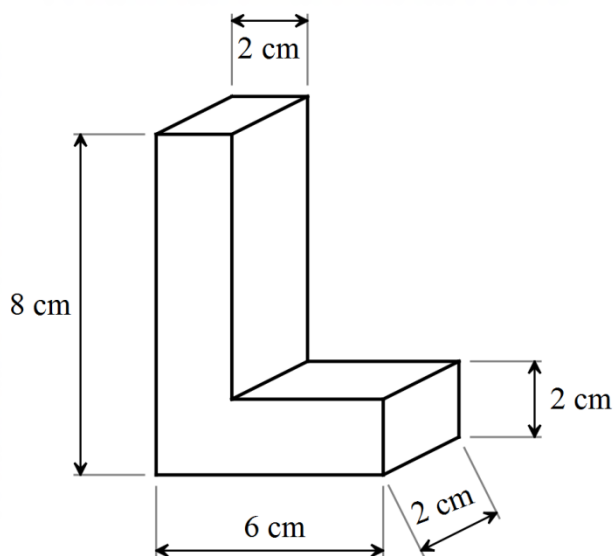
(b) Find the area of the shaded region.

(3)

(2)

(5 marks)

- (23) The following shape is a prism and is not drawn to scale. By showing all steps in your working, find:



(a) the total surface area

(b) the volume of the prism.

(3)

(2)

(5 marks)

(24) A fair 4-sided spinner is spun and a fair 6-sided dice is rolled.

Spinner showing 1, 2, 3, 4
 Dice showing 1, 2, 4, 5, 5, 6.

Complete the sample space diagram to show all possible outcomes of the sum of the squares of the scores. Two outcomes have been done for you.

(2)

	1	2	3	4
1			10	
2				
4				
5		29		
5				
6				

By giving your answers as simplified fractions, work out the probability of getting a score that is:

(a) a prime number

(1)

(b) a multiple of 13

(1)

(c) an even number

(1)

(d) a triangle number.

(1)

(6 marks)

(25) Solve the following equations:

(a) $4(m - 7) = 144$

(2)

(b) $\frac{x-17}{3} = 32$

(2)

(c) $\frac{20}{x-7} = 4$

(2)

(6 marks)

(26) (a) $\sqrt{66}$ lies between two consecutive whole numbers. Work out what they are.

$$\dots\dots < \sqrt{66} < \dots\dots$$

(2)

(b) Complete the table below by rounding the given numbers. Leave the grey boxes blank.

Number	1 dp	2 dp's	1 sf	2 sf's
27.8356				
1.0973				
78 993				
0.007923				

(5)

(7 marks)

(27) Expand and simplify the following expressions:

(a) $6(4d + 3) - 7(2d - 5) =$

(2)

(b) $5e(8 - 3e) - 12e(10e + 9) =$

(3)

(c) $\frac{f^2}{3} (36f + 18g) =$

(2)

(7 marks)

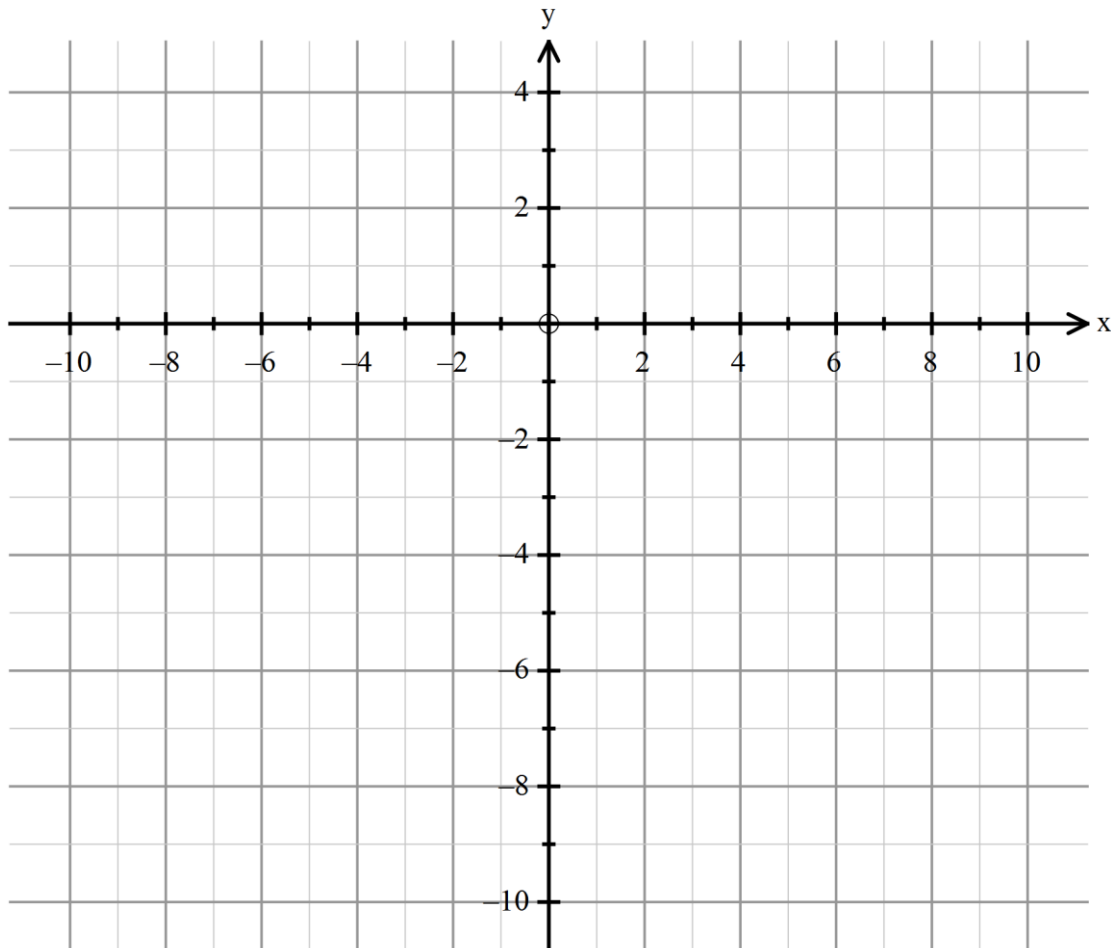
(28) (a) Complete the table below and use it to draw the line $y = 2x - 4$ on the graph provided.

x	-3	-2	0	2	4
y					

(b) On the same graph draw and label the lines $y = 2$ and $x = -2$. (3)

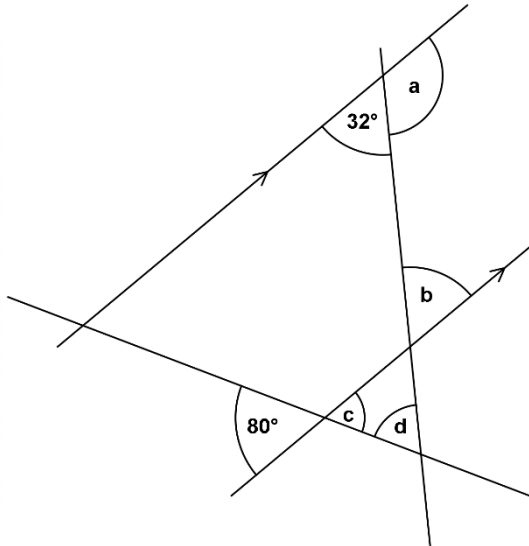
(c) Write down the coordinates of the vertices of the triangle formed by the three lines. (2)

(3)



(8 marks)

(29) Find the missing angles in the following diagram, giving reasons for each one. The diagram is not drawn to scale.



$a =$

reason

.....

(2)

$b =$

reason

.....

(2)

$c =$

reason

.....

(2)

$d =$

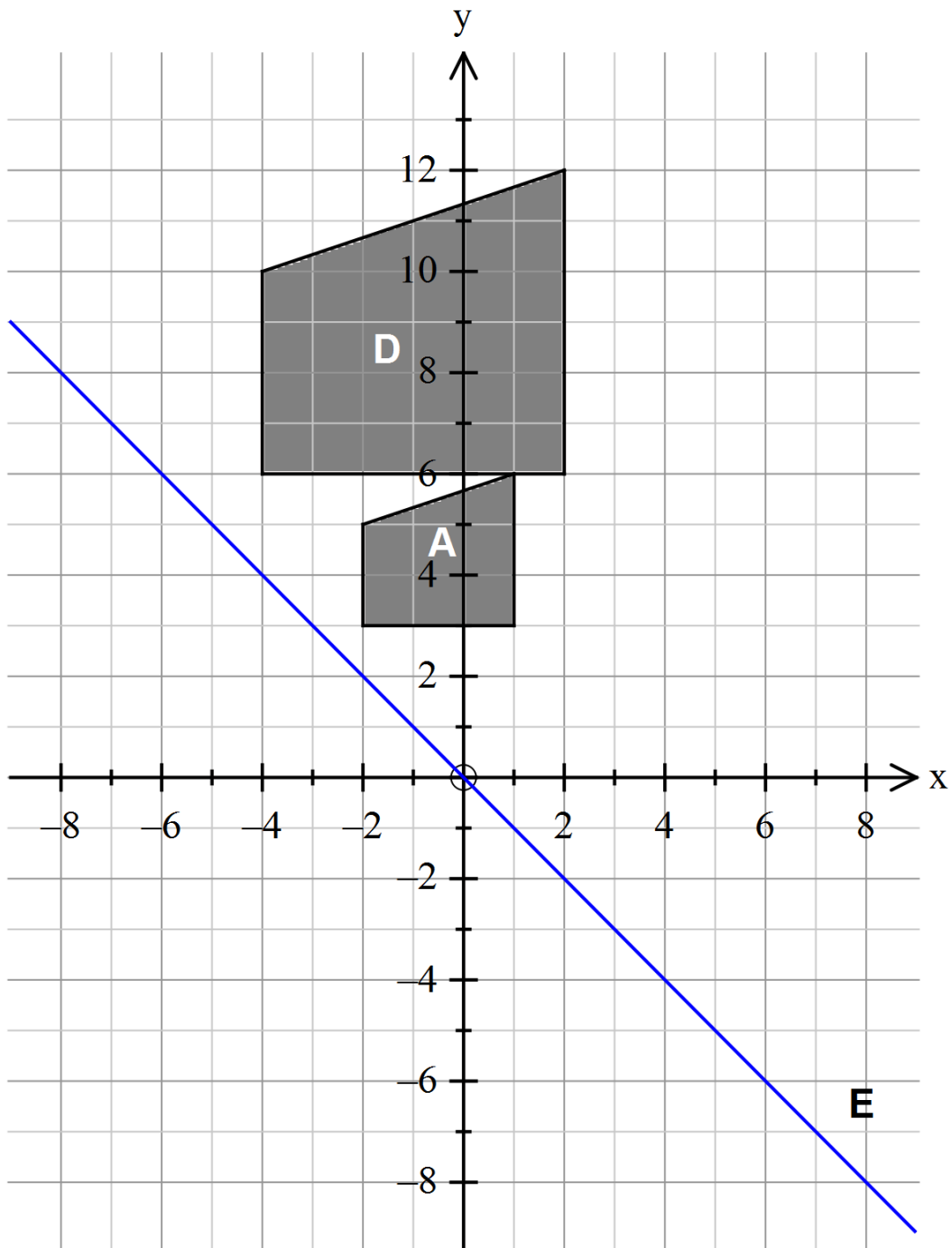
reason

.....

(2)

(8 marks)

(30)



(a) Rotate shape A, 90° clockwise about the point $(1, 1)$. Label the image B.

(b) Translate B, 10 unit squares to the left and 6 unit squares down. Label the image C.

(2)

(1)

(c) Describe the transformation that maps shape A onto D.

.....
.....
.....

(d) Find the area of D. (3)

(e) Give the equation of line E. (2)

(f) Reflect shape A along the line E. Label the image F. (1)

(10 marks)

The End

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