Name	Date

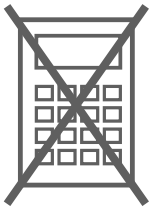
GCSE Mathematics 9-1

Symmetry

(Non-Calculator)

Exam-Style Topic Paper	Total Marks
Time: 55 minutes	**/ 47**

Instructions



- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name and date number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may **not** be used.

Information

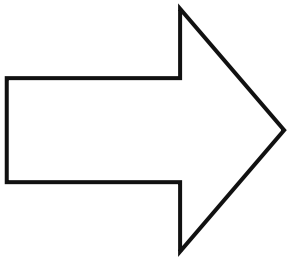
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

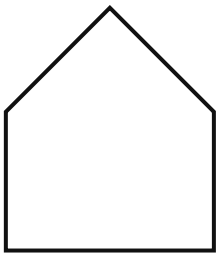
- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

1 Draw all the lines of symmetry on each of these shapes.

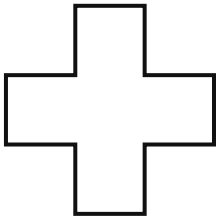
(a)



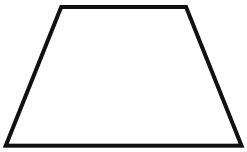
(b)



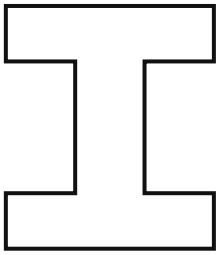
(c)



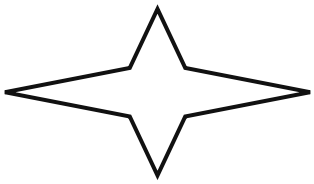
(d)



(e)



(f)



[6 marks]

2 How many lines of symmetry does an equilateral triangle have?

.....

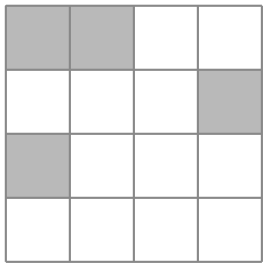
[1 mark]

3 Write down the name of a quadrilateral that has exactly 2 lines of symmetry.

.....

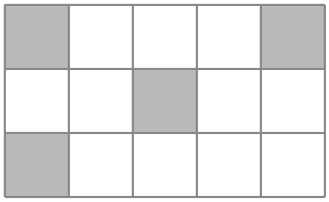
[1 mark]

4 Shade **two** more squares so that the pattern has rotational symmetry of order 2



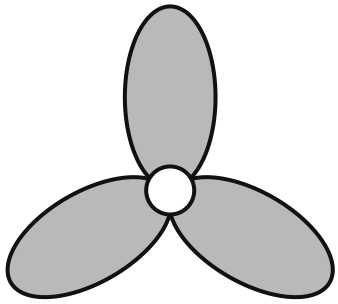
[2 marks]

5 Shade **one** more square so that the pattern has exactly two lines of symmetry.



[1 mark]

6 Here is a pattern.



Write down

(i) the number of lines of symmetry,

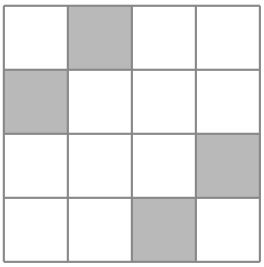
.....

(ii) the order of rotational symmetry.

.....

[2 marks]

7 Shade **four** more squares so that the pattern has four lines of symmetry.



[2 marks]

8 Sara says, "If a shape has rotational symmetry of order 2, it must have a line of symmetry."
Is Sara correct?
Explain your answer.

.....

.....

[1 mark]

9 Here are six capital letters.

H K N T X Z

(a) Write down a letter that has no lines of symmetry.

.....

[1 mark]

(b) Write down the two letters that have exactly one line of symmetry.

.....

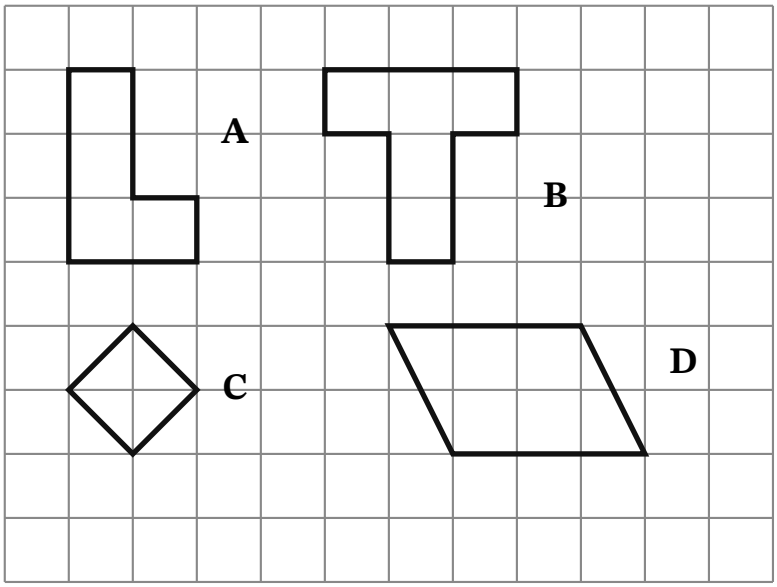
[1 mark]

(c) Write down a letter that has exactly two lines of symmetry.

.....

[1 mark]

10 Here are four shapes drawn on a grid.

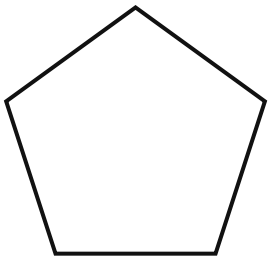


Which **two** shapes have a line of symmetry?

.....

[2 marks]

11 Here is a regular pentagon.



(a) How many lines of symmetry does a regular pentagon have?

.....

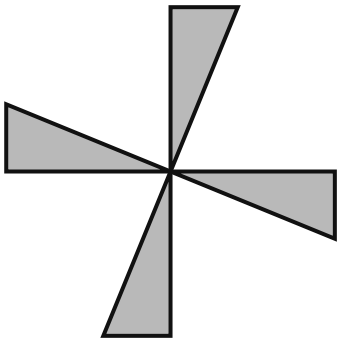
[1 mark]

(b) Write down the order of rotational symmetry of a regular pentagon.

.....

[1 mark]

12 Here is a shape made from four triangles.

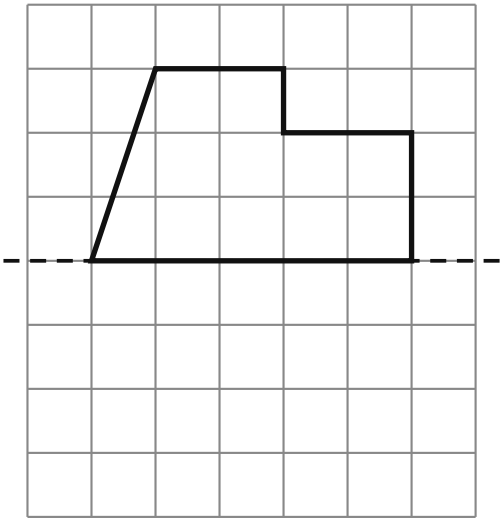


Write down the order of rotational symmetry of the shape.

.....

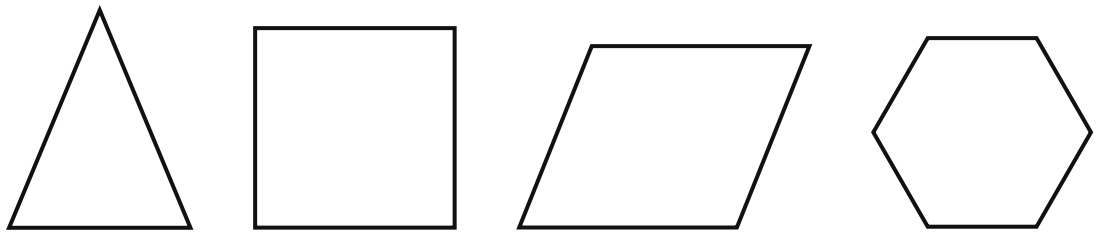
[1 mark]

13 Complete the shape so that the dashed line is a line of symmetry.



[2 marks]

14 Here are four shapes.



A **B** **C** **D**

(a) Which shape has exactly one line of symmetry?

.....

[1 mark]

(b) Which shape has no lines of symmetry?

.....

[1 mark]

(c) Which shape has the most lines of symmetry?

.....

[1 mark]

---

15 Ali says, "A parallelogram has 2 lines of symmetry."
Is Ali correct?
Explain your answer.

.....

.....

[1 mark]

---

16 A regular polygon has 8 lines of symmetry.

(a) Write down the name of the polygon.

.....

[1 mark]

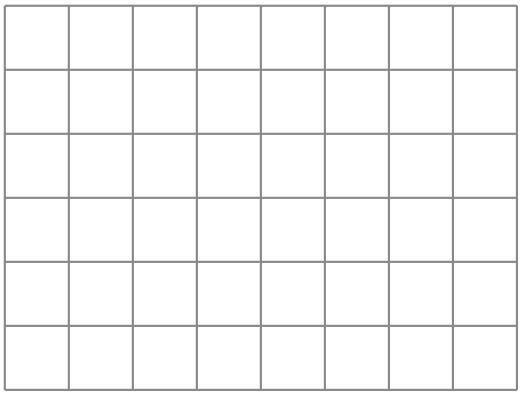
(b) Write down its order of rotational symmetry.

.....

[1 mark]

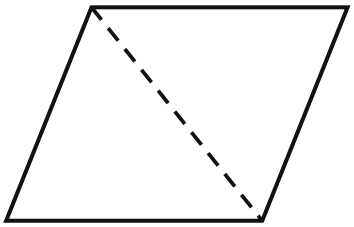
---

17 On the grid, draw a triangle that has exactly one line of symmetry.



[1 mark]

18 Here is a parallelogram with a dashed line drawn on it.



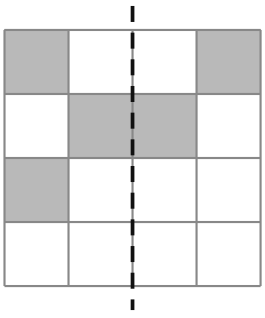
Is the dashed line a line of symmetry?
Explain your answer.

.....

.....

[1 mark]

19 Here is a pattern made from shaded squares.
The dashed line is a line of symmetry.
Shade **one** more square to make the pattern symmetrical.



[1 mark]

20 Here is a rectangle.



Draw all the lines of symmetry on the rectangle.

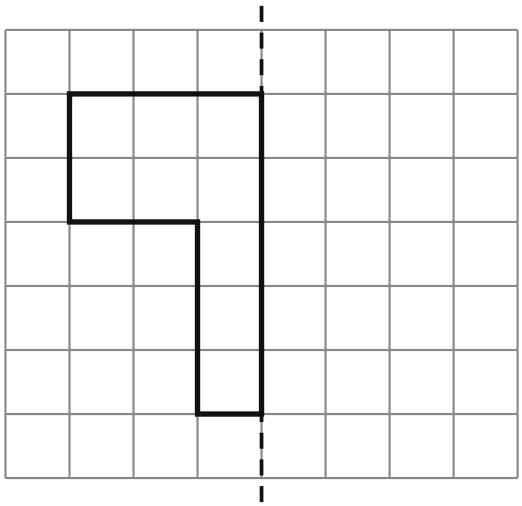
[2 marks]

21 Complete the table.

Shape	Number of lines of symmetry	Order of rotational symmetry
Square	4	4
Rectangle		
Rhombus		
Parallelogram		
Kite		

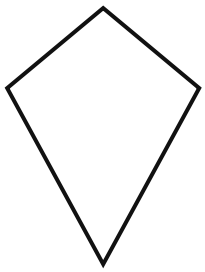
[4 marks]

22 Complete the shape so that the dashed line is a line of symmetry.



[2 marks]

23 Here is a kite.



(a) Draw the line of symmetry on the kite.

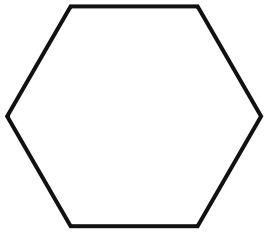
[1 mark]

(b) Write down the order of rotational symmetry of the kite.

.....

[1 mark]

24 Here is a regular hexagon.



(a) How many lines of symmetry does a regular hexagon have?

.....

[1 mark]

(b) Write down the order of rotational symmetry of a regular hexagon.

.....

[1 mark]