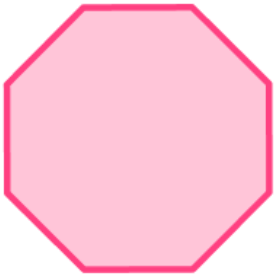
Rotational Symmetry - Worksheet

Skill

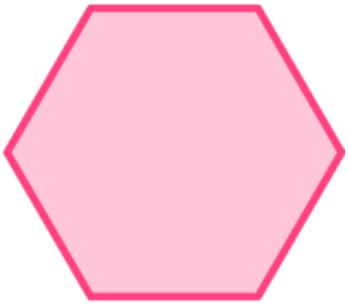
Group A - Rotational symmetry in regular shapes

State the order of rotational symmetry for the following regular polygons:

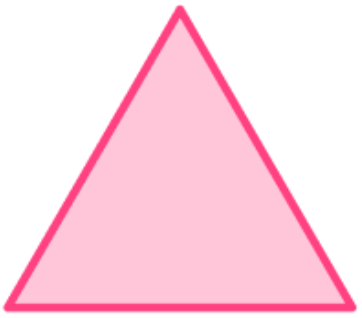
1)



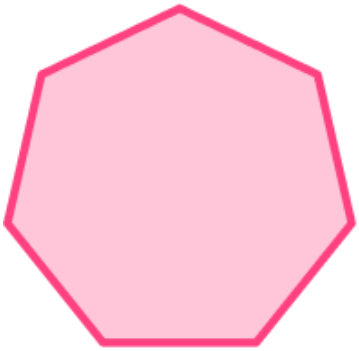
2)



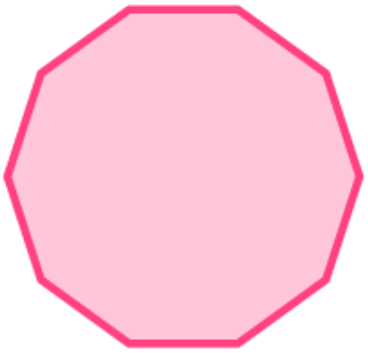
3)



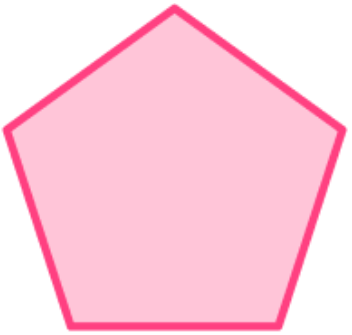
4)



5)

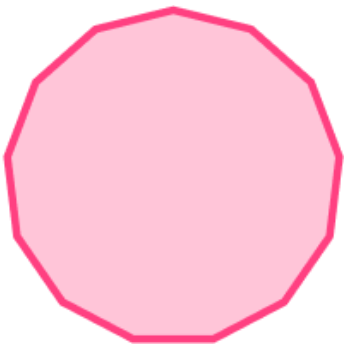


6)

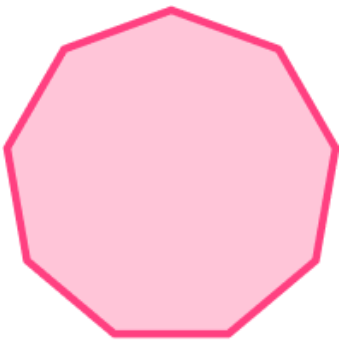


7)

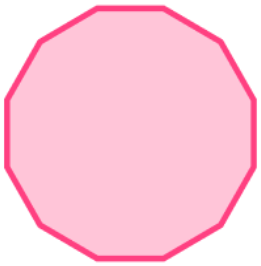
8)



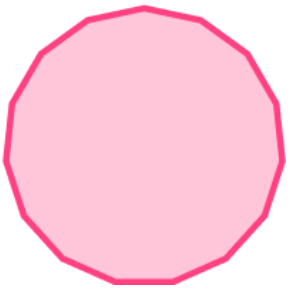
9)



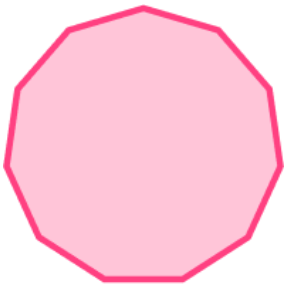
10)



11)



12)

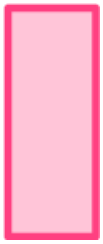


Rotational Symmetry - Worksheet

Group B - Rotational symmetry in irregular shapes

State the order of rotational symmetry for the following shapes:

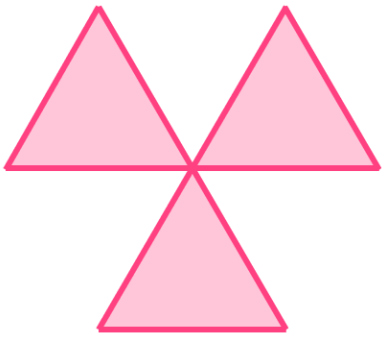
1)



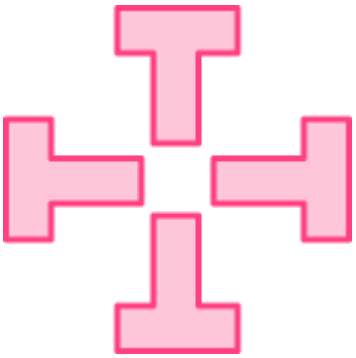
2)

3)

4)

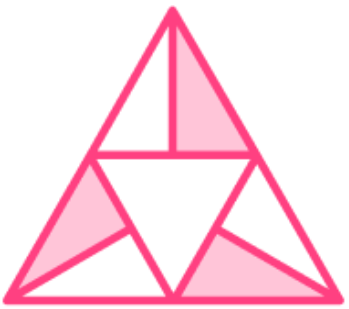


5)



6)

7)



8)

9)

10)

11)

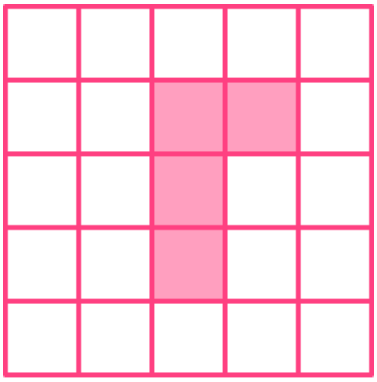
12)

Rotational Symmetry - Worksheet

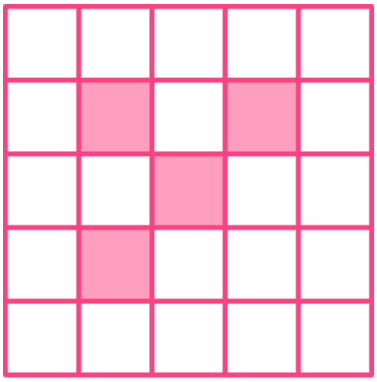
Group C - Rotational symmetry problems

Follow the instructions below:

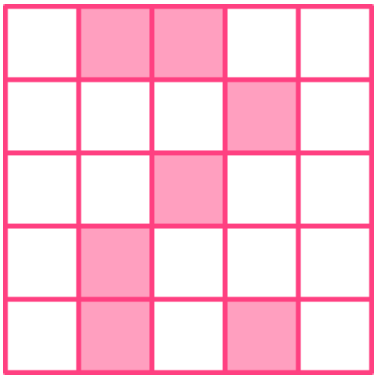
1) Shade 1 box so the pattern has rotational symmetry of order 2.



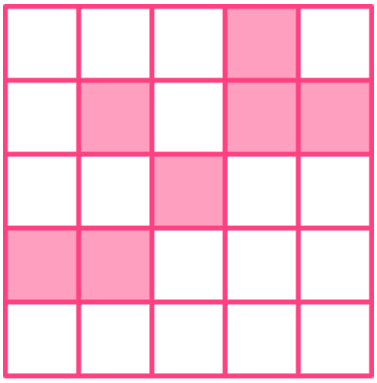
2) Shade 1 box so the pattern has rotational symmetry of order 4.



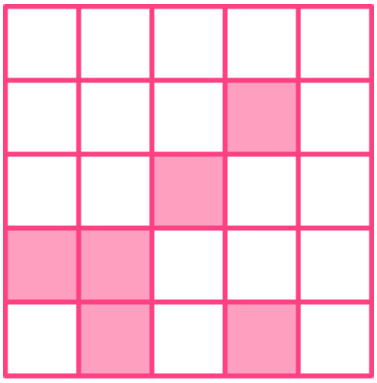
3) Shade 2 boxes so the pattern has rotational symmetry of order 2.



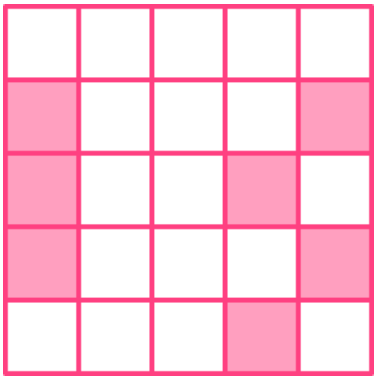
4) Shade 2 boxes so the pattern has rotational symmetry of order 2.



5) Shade 3 boxes so the pattern has rotational symmetry of order 2.

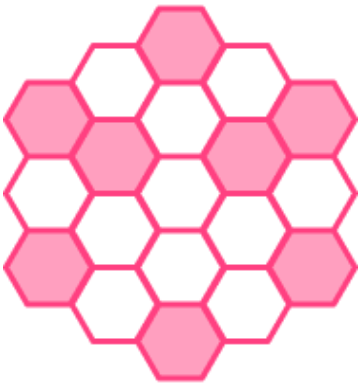


6) Shade 3 boxes so the pattern has rotational symmetry of order 2.

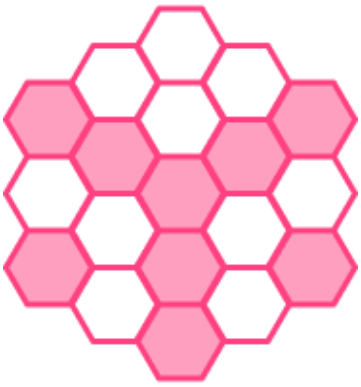


Rotational Symmetry - Worksheet

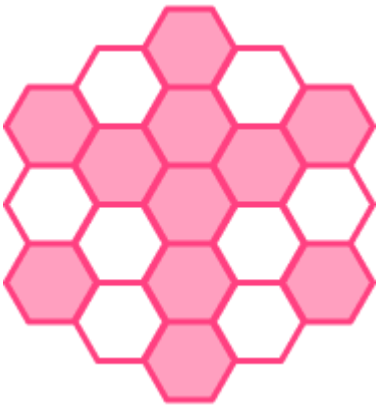
7) Shade 1 hexagon so the pattern has rotational symmetry of order 3.



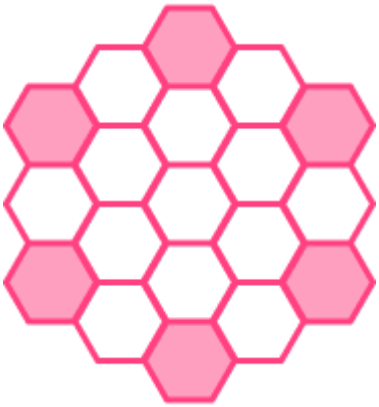
8) Shade 1 hexagon so the pattern has rotational symmetry of order 3.



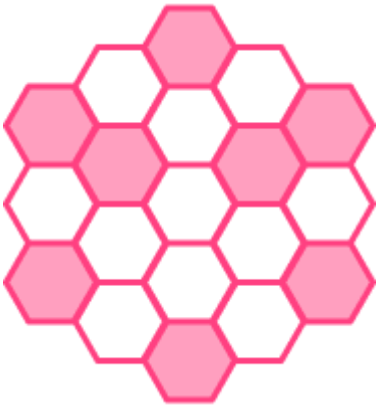
9) Shade 2 hexagons so the pattern has rotational symmetry of order 6.



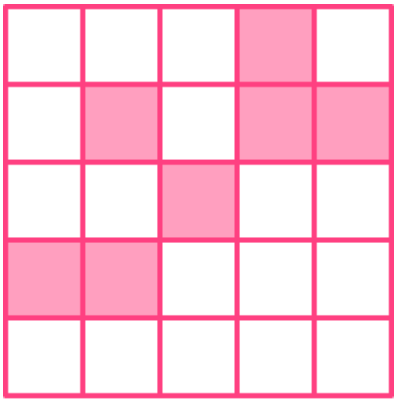
10) Shade 1 hexagon so the pattern has rotational symmetry of order 6.



11) Shade 2 hexagons so the pattern has rotational symmetry of order 2.



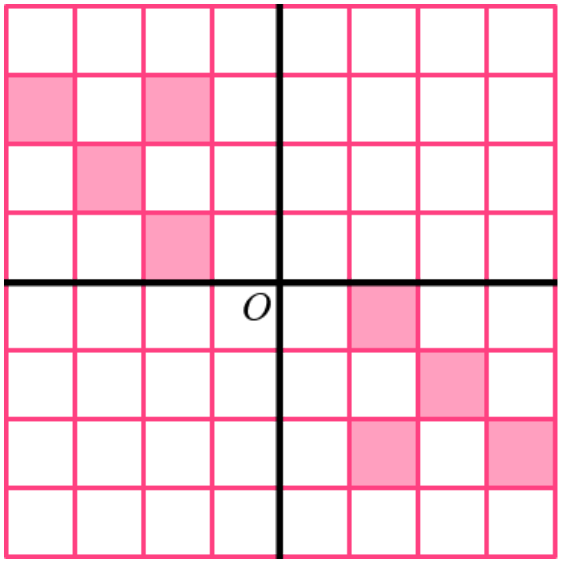
12) Shade 6 boxes so the pattern has rotational symmetry of order 4.



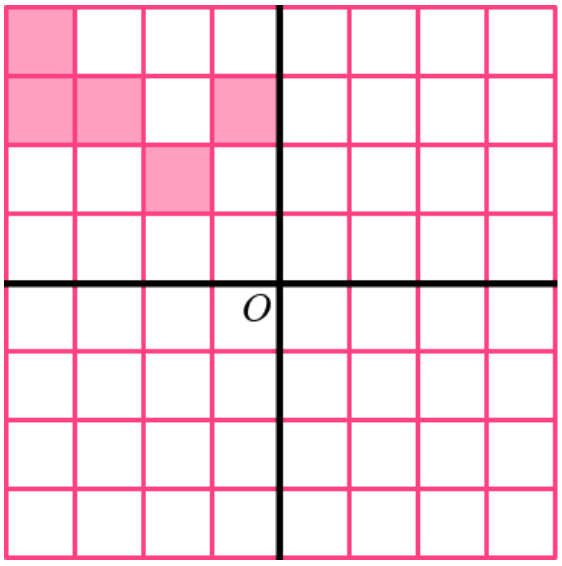
Rotational Symmetry - Worksheet

Applied

1) Draw patterns, like the one given, in each of the other two quadrants, so that the completed pattern has rotational symmetry of order 4.

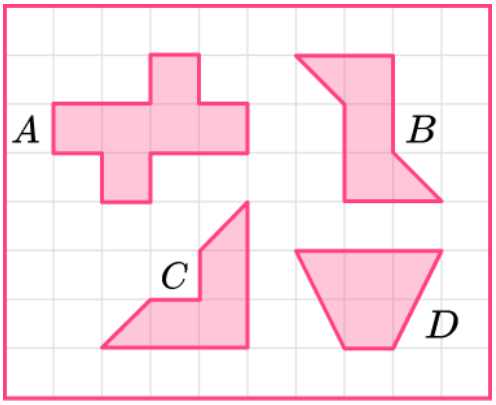


2) Draw patterns, like the one given, in each of the other three quadrants, so that the completed pattern has rotational symmetry of order 4.



Rotational Symmetry - Worksheet

3) Which two shapes have rotational symmetry order 2?



4) Draw a shape with:

(a) Rotational symmetry order 1

(b) Rotational symmetry order 2

(c) Rotational symmetry order 3

(d) Rotational symmetry order 4

Rotational Symmetry - Exam Questions

1) **(a)** State the order of rotational symmetry of the shape below.

.....

(1)

(b) Draw a three sided polygon with rotational symmetry order 1.

(1)

(2 marks)

---

2) **(a)** State the order of rotational symmetry of the shape below.

.....

(1)

(b) State the order of rotational symmetry of a square.

.....

(1)

(2 marks)

Rotational Symmetry - Exam Questions

3) **(a)** James is exploring symmetry. He draws a regular hexagon.
What is the order of rotational symmetry?

.....

(1)

(b) Calculate the sum of its interior angles.

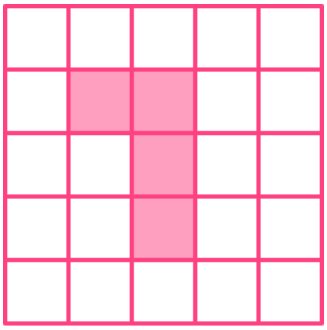
.....

(2)

(3 marks)

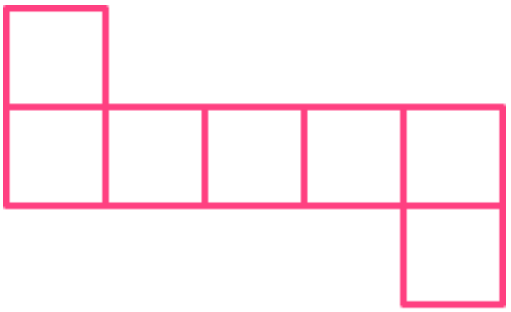
---

4) **(a)** Shade one more square to make a pattern with rotational symmetry of order 2.



(1)

(b) The shape below has rotational symmetry.

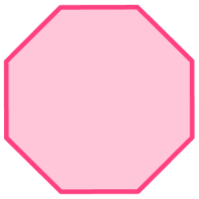
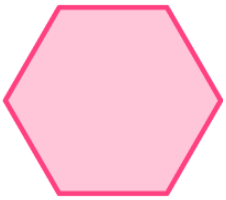
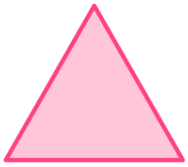
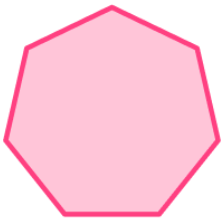
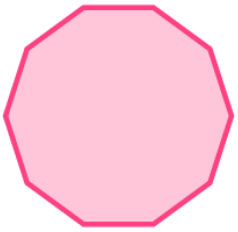
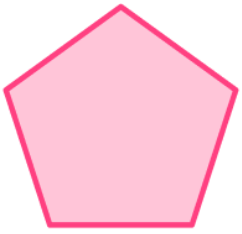


Mark with a cross (x) the centre of rotation.

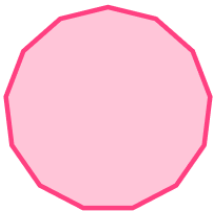
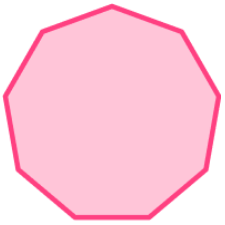
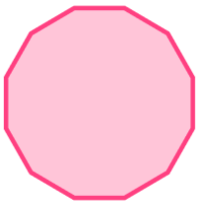
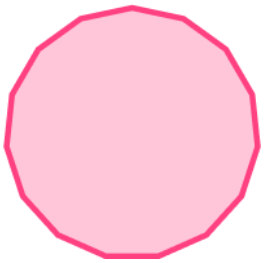
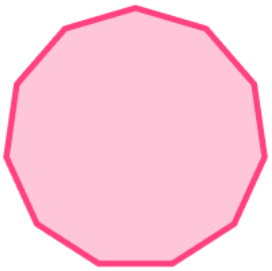
(1)

(2 marks)

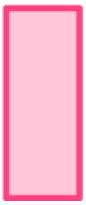
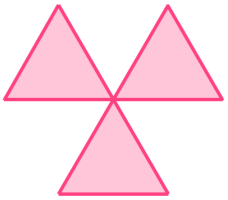
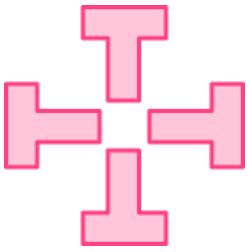
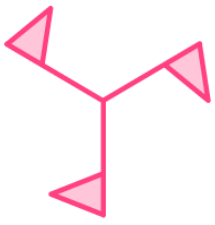
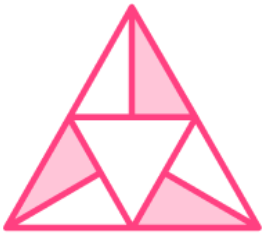
Rotational Symmetry - Answers

	Question	Answer
	Skill Questions	
Group A	State the order of rotational symmetry for the following regular polygons: **1)**  **2)**  **3)**  **4)**  **5)**  **6)** 	**1)** 8 **2)** 6 **3)** 3 **4)** 7 **5)** 10 **6)** 5

Rotational Symmetry - Answers

Group A contd	**7)** 	**7)** 4
	8) 	**8)** 13
	9) 	**9)** 9
	10) 	**10)** 12
	11) 	**11)** 15
	12) 	**12)** 11

Rotational Symmetry - Answers

Group B	State the order of rotational symmetry for the following shapes: **1)**  **2)**  **3)**  **4)**  **5)**  **6)**  **7)** 	**1)** 2 **2)** 1 **3)** 2 **4)** 3 **5)** 4 **6)** 3 **7)** 3

Rotational Symmetry - Answers

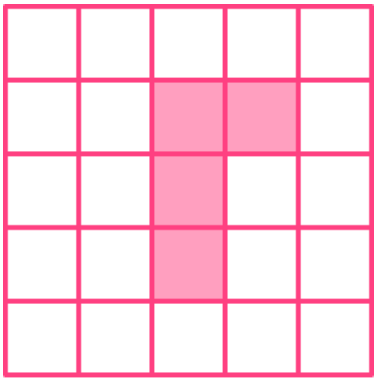
Group B contd	**8)** 	**8)** 1
	9) 	**9)** 1
	10) 	**10)** 2
	11) 	**11)** 1
	12) 	**12)** 1

Rotational Symmetry - Answers

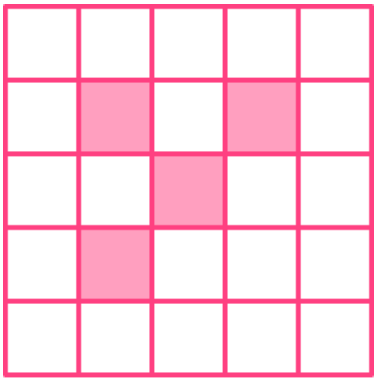
Group C

Follow the instructions below:

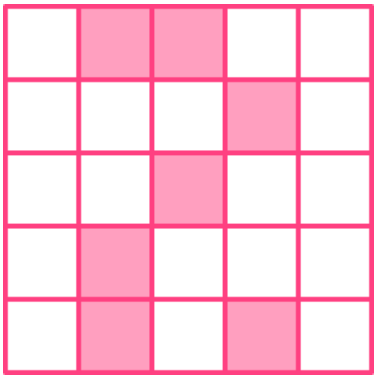
1) Shade 1 box so the pattern has rotational symmetry of order 2.



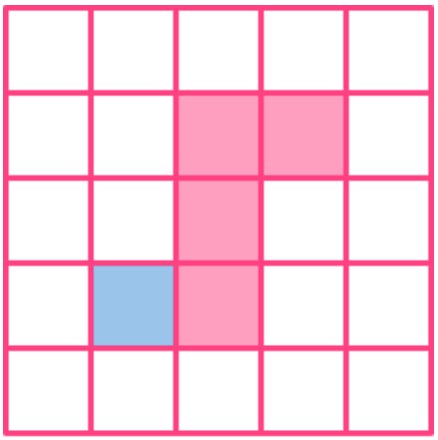
2) Shade 1 box so the pattern has rotational symmetry of order 4.



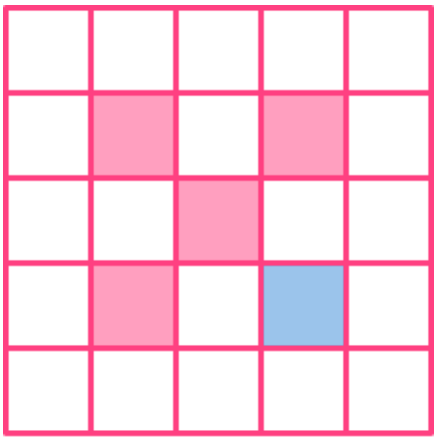
3) Shade 2 boxes so the pattern has rotational symmetry of order 2.



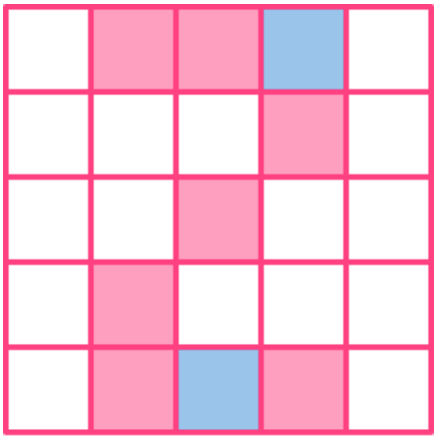
1)



2)



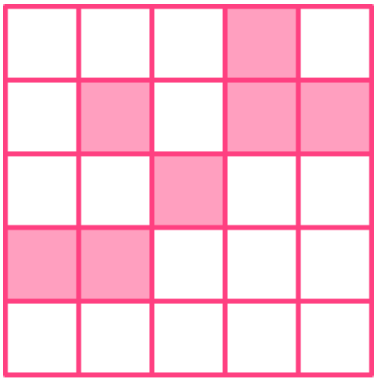
3)



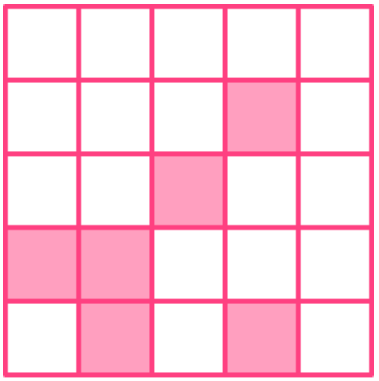
Rotational Symmetry - Answers

Group C contd

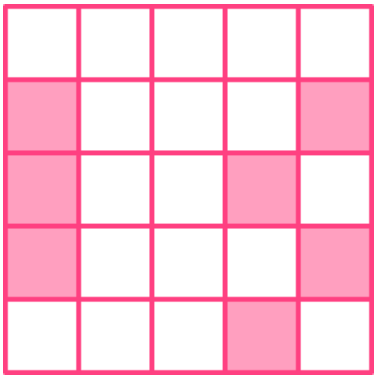
4) Shade 2 boxes so the pattern has rotational symmetry of order 2.



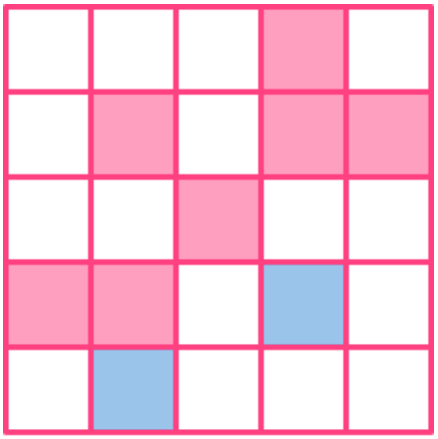
5) Shade 3 boxes so the pattern has rotational symmetry of order 2.



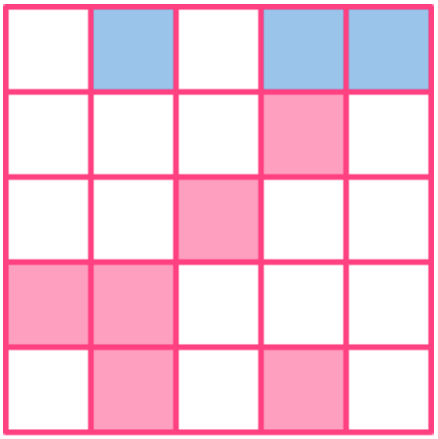
6) Shade 3 boxes so the pattern has rotational symmetry of order 2.



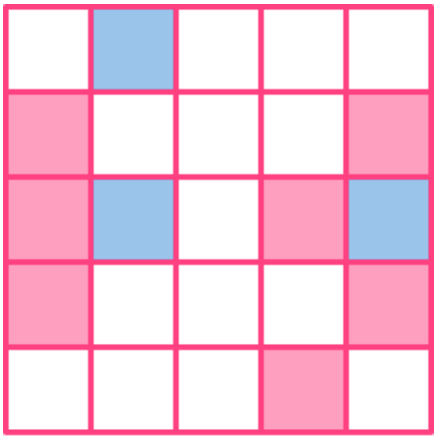
4)



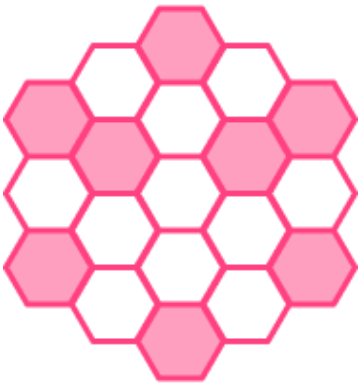
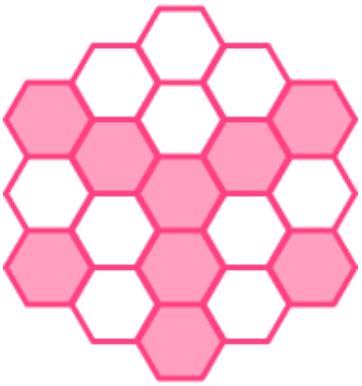
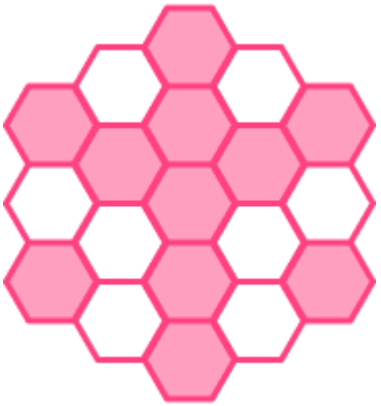
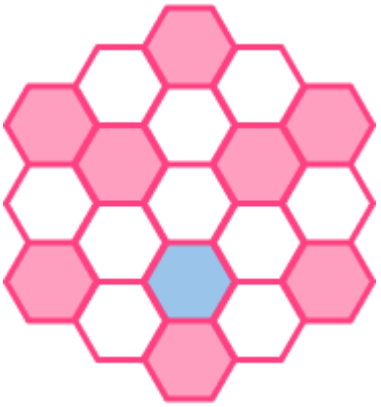
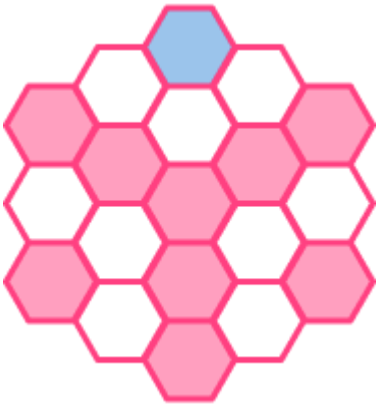
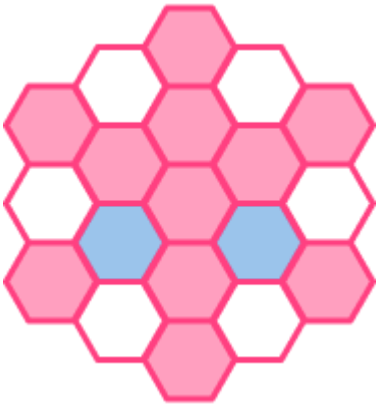
5)



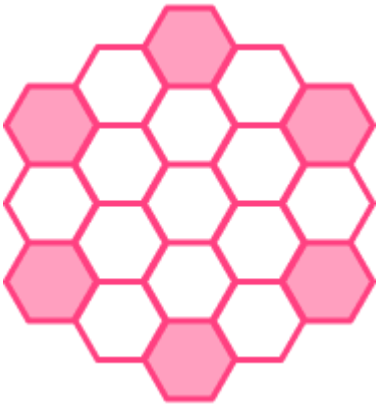
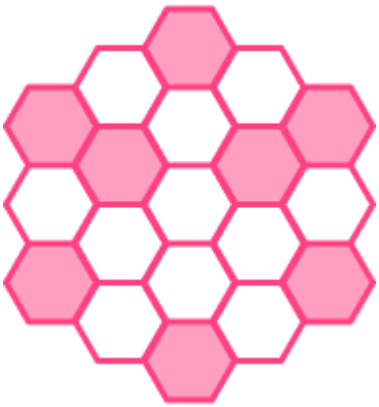
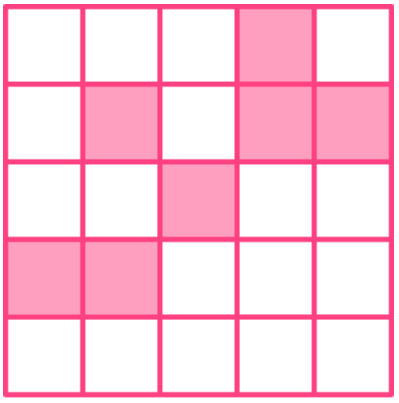
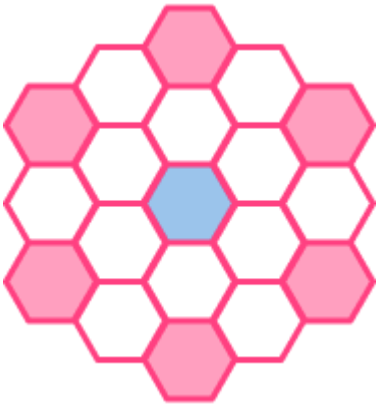
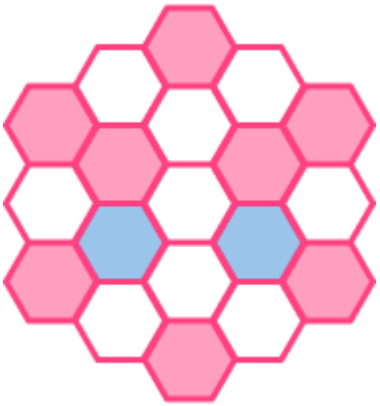
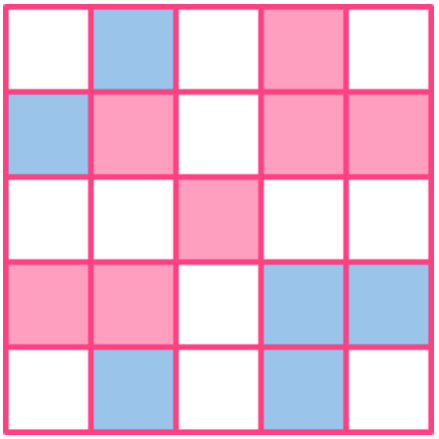
6)



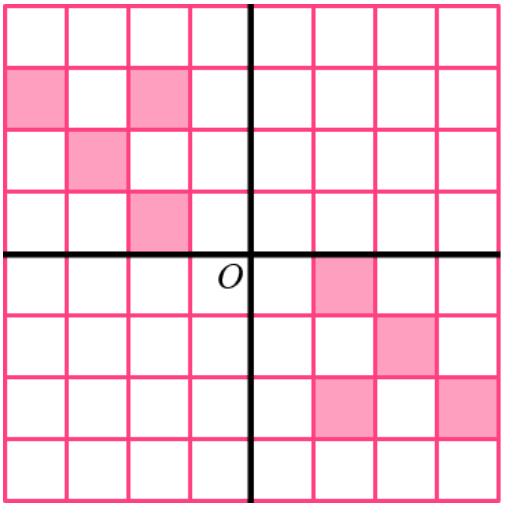
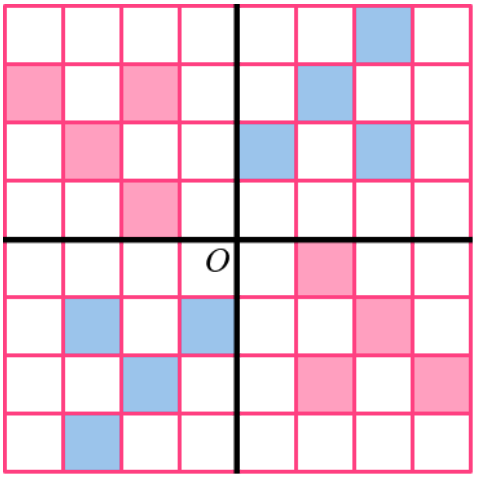
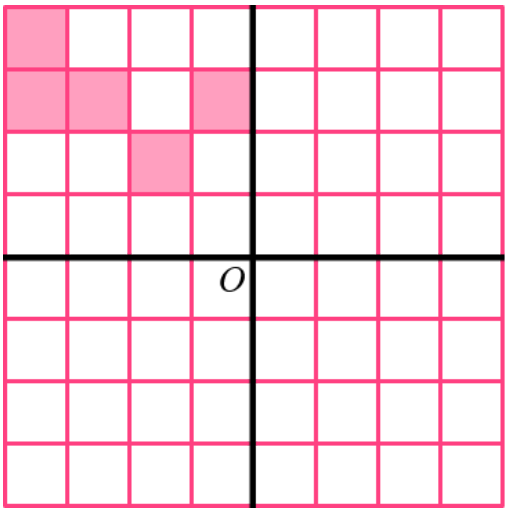
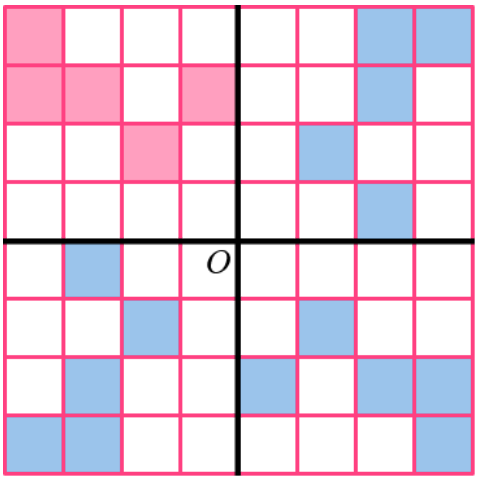
Rotational Symmetry - Answers

Group C contd	**7)** Shade 1 hexagon so the pattern has rotational symmetry of order 3.  **8)** Shade 1 hexagon so the pattern has rotational symmetry of order 3.  **9)** Shade 2 hexagons so the pattern has rotational symmetry of order 6. 	**7)**  **8)**  **9)** 

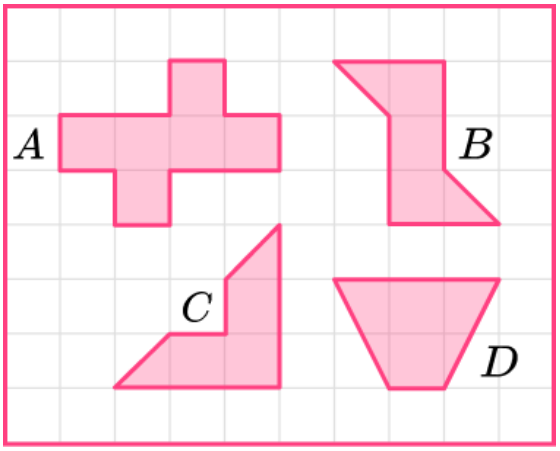
Rotational Symmetry - Answers

Group C contd	**10)** Shade 1 hexagon so the pattern has rotational symmetry of order 6.  **11)** Shade 2 hexagons so the pattern has rotational symmetry of order 2.  **12)** Shade 6 boxes so the pattern has rotational symmetry of order 4. 	**10)**  **11)**  **12)** 

Rotational Symmetry - Worksheet

	Question	Answer
	Applied Questions	
1)	Draw patterns, like the one given, in each of the other two quadrants, so that the completed pattern has rotational symmetry of order 4. 	
2)	Draw patterns, like the one given, in each of the other three quadrants, so that the completed pattern has rotational symmetry of order 4. 	

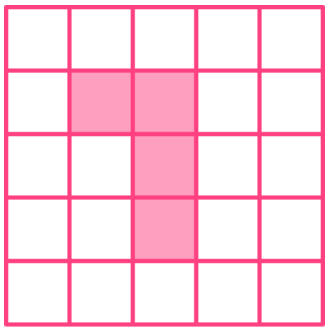
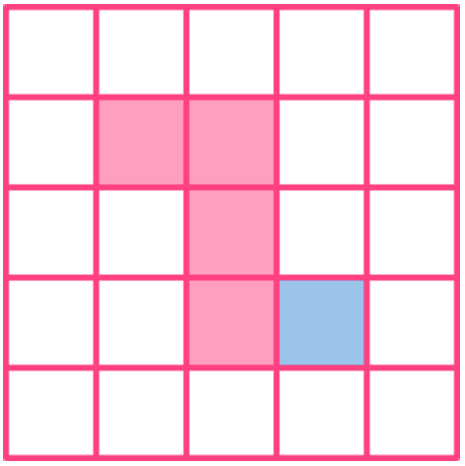
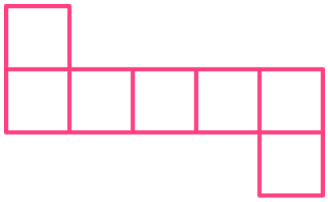
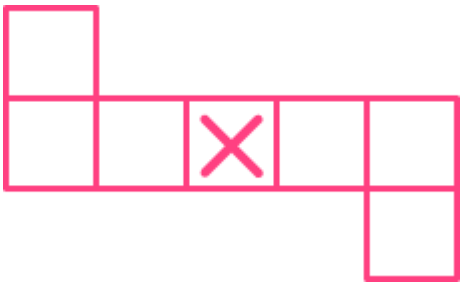
Rotational Symmetry - Worksheet

3)	Which two shapes have rotational symmetry order 2?  	A and B
4)	Draw a shape with: **a)** Rotational symmetry order 1 **b)** Rotational symmetry order 2 **c)** Rotational symmetry order 3 **d)** Rotational symmetry order 4	Any correct shape drawn. E.g. **a)** A trapezium **b)** A rectangle **c)** An equilateral triangle **d)** A square

Rotational Symmetry - Worksheet

	Question	Answer	
	Exam Questions		
1) (a)	State the order of rotational symmetry of the shape below. 	**(a)** 8	**(1)**
(b)	Draw a three sided polygon with rotational symmetry order 1.	**(b)** Any correct shape drawn e.g. a scalene triangle.	**(1)**
2) (a)	State the order of rotational symmetry of the shape below. 	**(a)** 2	**(1)**
(b)	State the order of rotational symmetry of a square.	**(b)** 4	**(1)**
3) (a)	James is exploring symmetry. He draws a regular hexagon. What is the order of rotational symmetry?	**(a)** 6	**(1)**
(b)	Calculate the sum of its interior angles.	**(b)** $(6 - 2) \times 180$ 720^o	**(1)** **(1)**

Rotational Symmetry - Mark Scheme

4) (a)	Shade one more square to make a pattern with rotational symmetry of order 2. 	**(a)** 	**(1)**
(b)	The shape below has rotational symmetry.  Mark with a cross (x) the centre of rotation.	**(b)** 	**(1)**