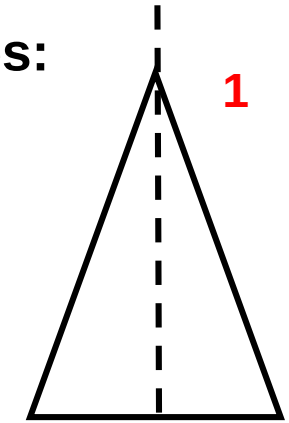
Symmetry

Lines and Points of Symmetry

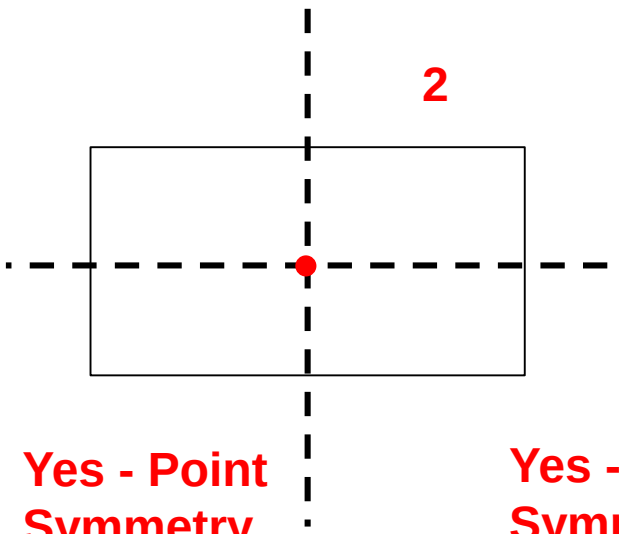
- **Some figures can be folded so that the two halves match exactly. The fold is a line of reflection called** Line of Symmetry.
- **If there is a common point of reflection for all points on a figure, the point of reflection is called a** Point of Symmetry.

Examples:



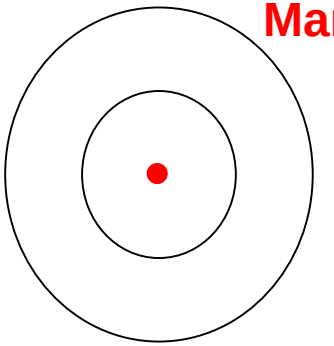
1

No - Point Symmetry



2

Yes - Point Symmetry



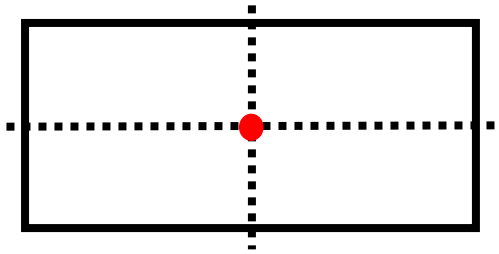
Infinitely Many

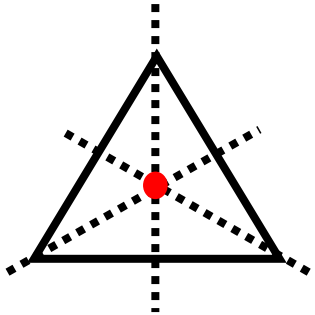
Yes - Point Symmetry

Symmetry

We are familiar with identifying symmetry through reflection, today we will look at symmetry through rotation.

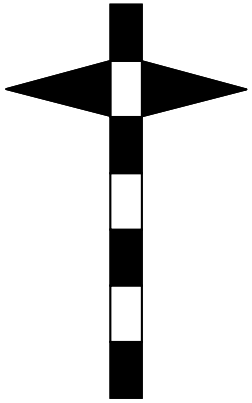
First, what point do we rotate a shape about.





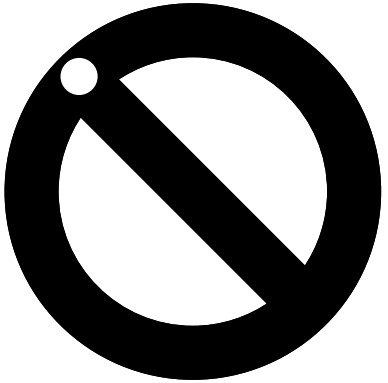
The intersection of the lines of symmetry by reflection is the point we will rotate the shape about.

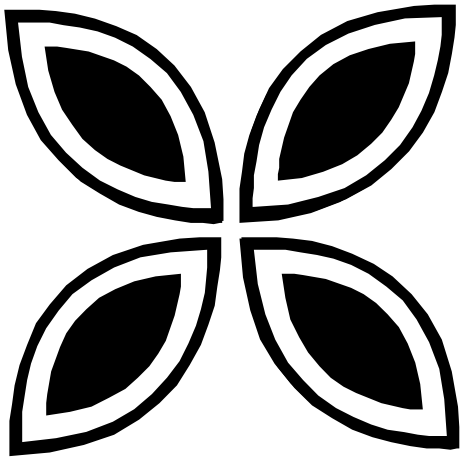
Rotational Symmetry



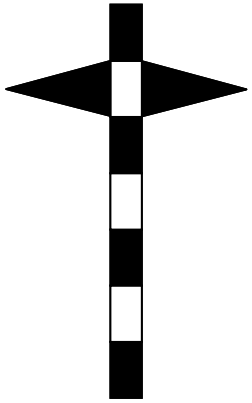
None

The order of rotational symmetry that an object has is the number of times that it fits on to itself during a full rotation of 360 degrees.





Rotational Symmetry



None

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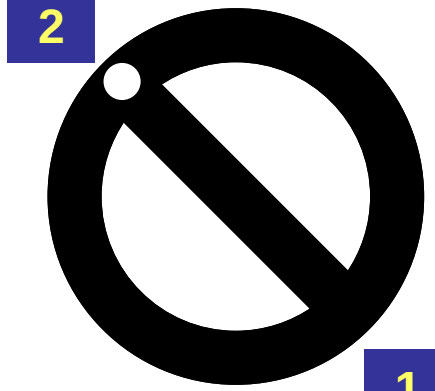
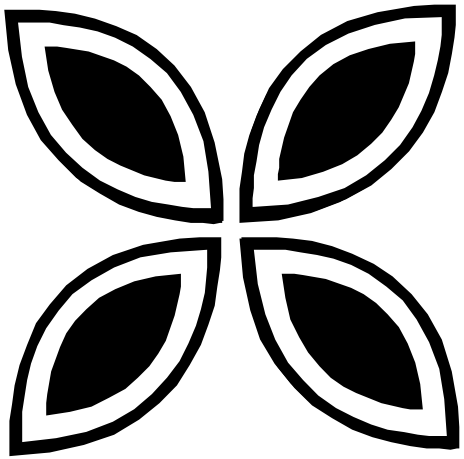
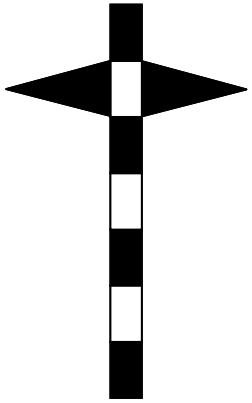


Order 2



Rotational Symmetry



None

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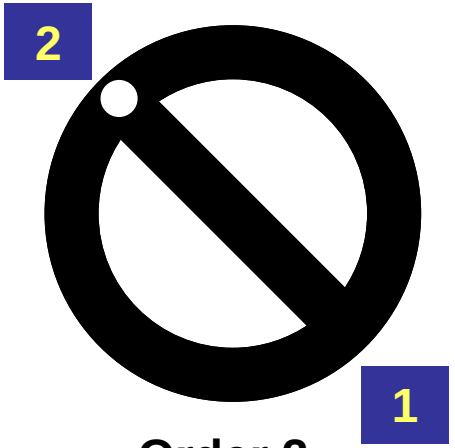
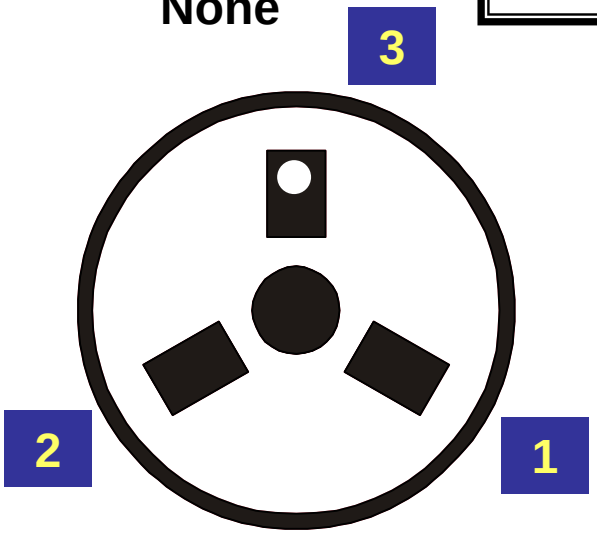
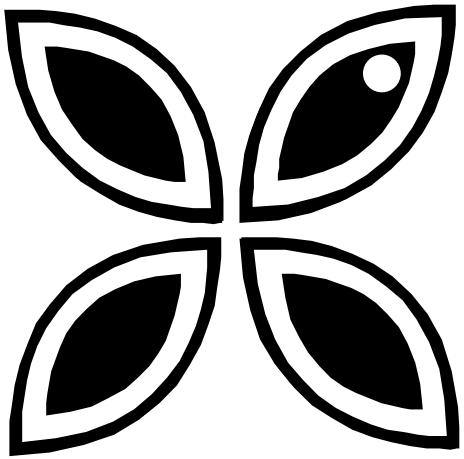


Order 2

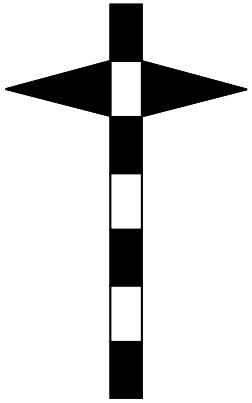


Order 3

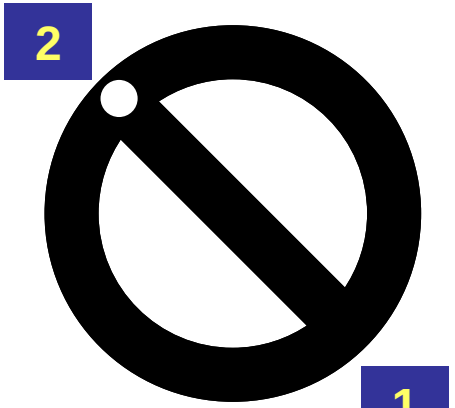


Rotational Symmetry

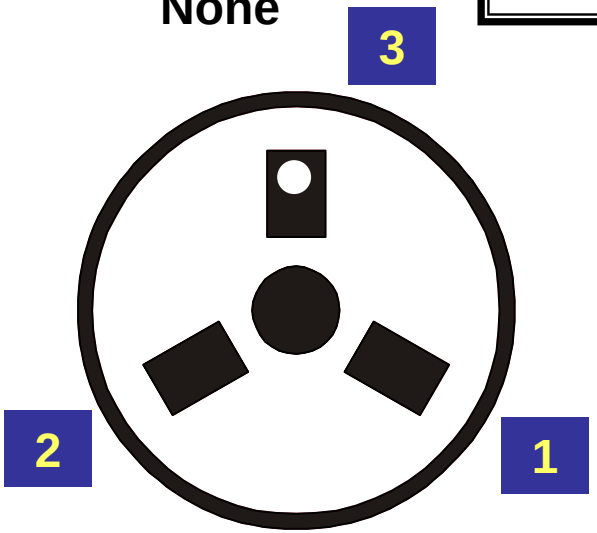
The order of rotational symmetry that an object has is the number of times that it fits on to itself during a full rotation of 360 degrees.



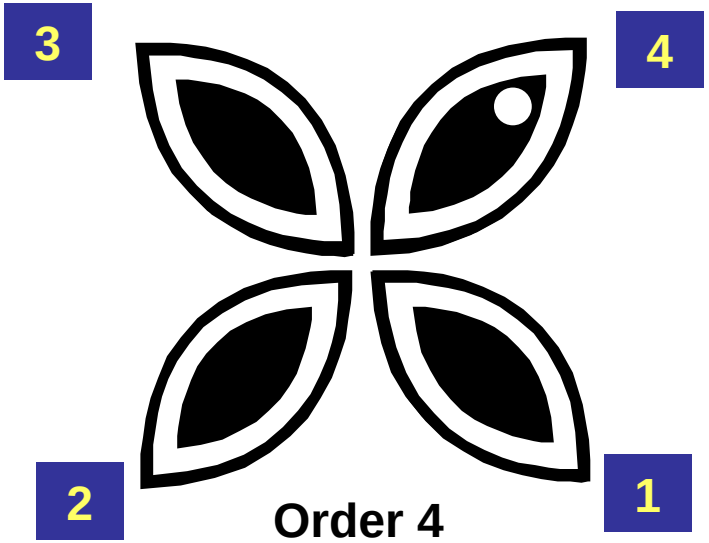
None



Order 2



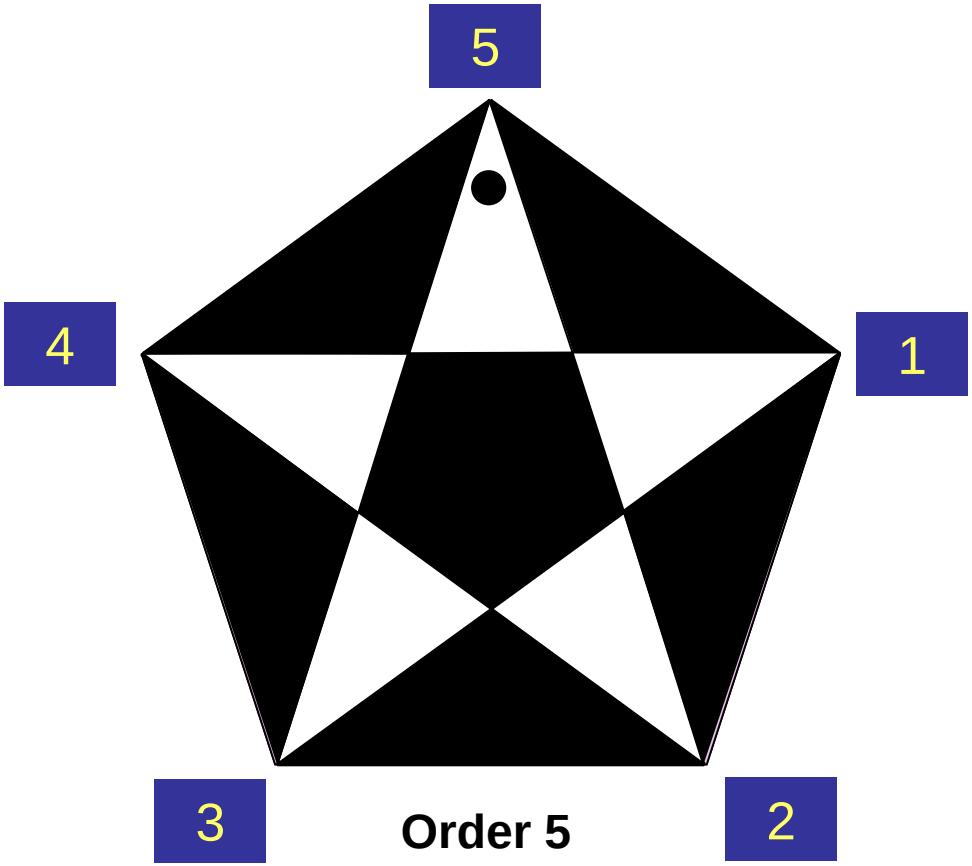
Order 3



Order 4

Rotational Symmetry

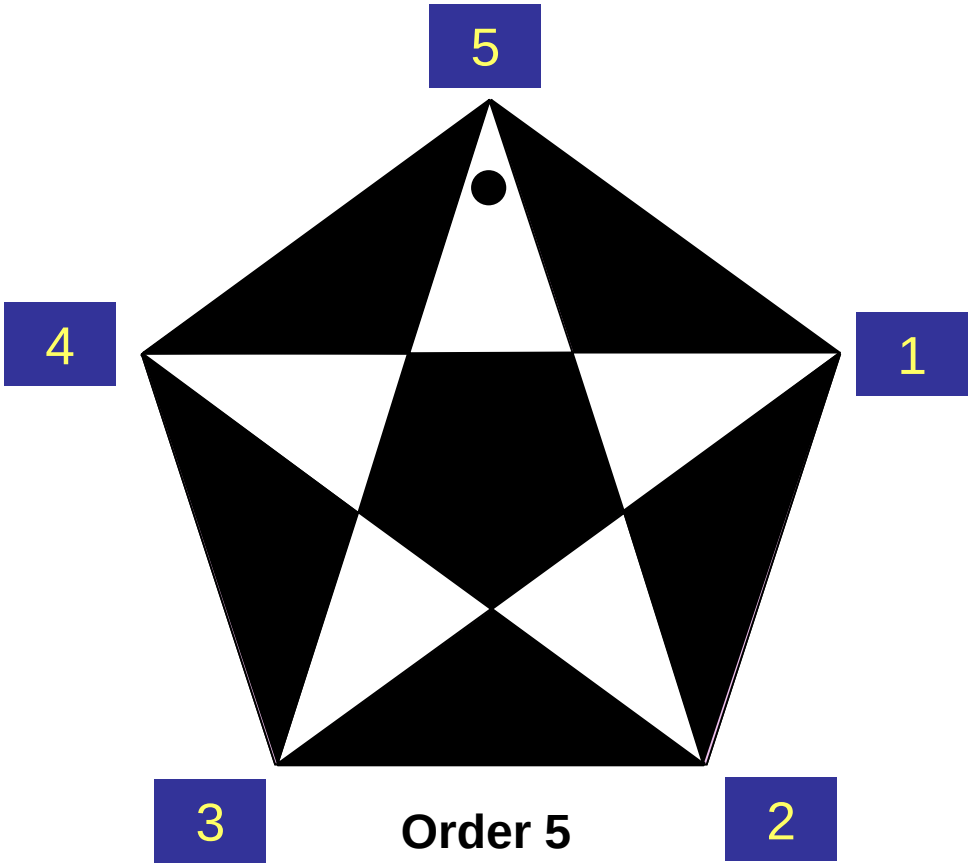
What is the order of rotational symmetry of the shape below?



Order 5

Angle of Rotational Symmetry

At what angle (magnitude) does the shape have rotational symmetry?



Order 5

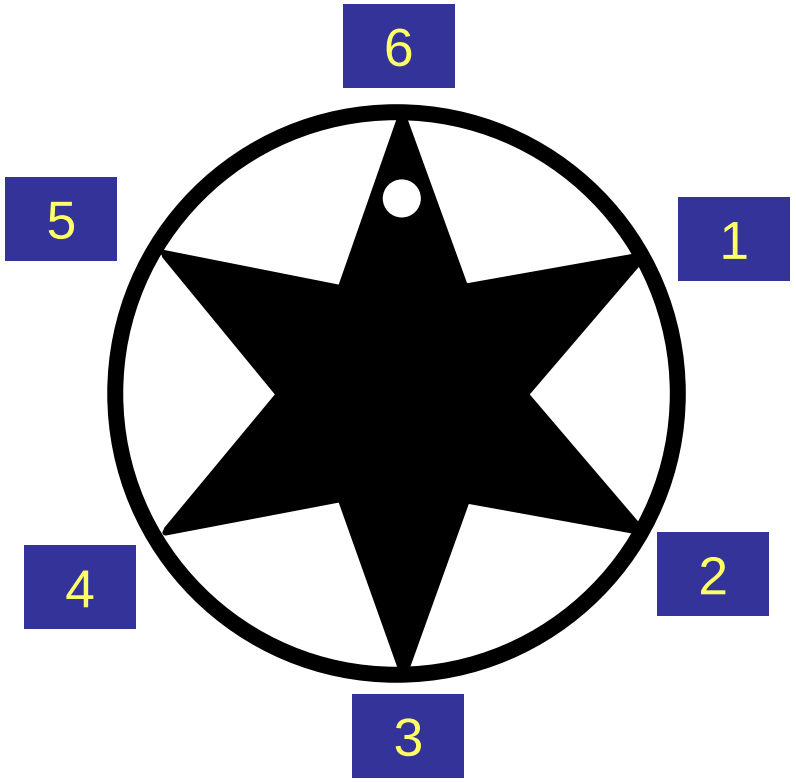
Angle of symmetry: $360^{o} \div$ Order

$360^{o} \div 5$

Magnitude of rotational symmetry is 72^{o}

Rotational Symmetry

What is the order and magnitude of rotational symmetry of the shape below?



Order 6

Angle of symmetry: $360^{o} \div$ Order

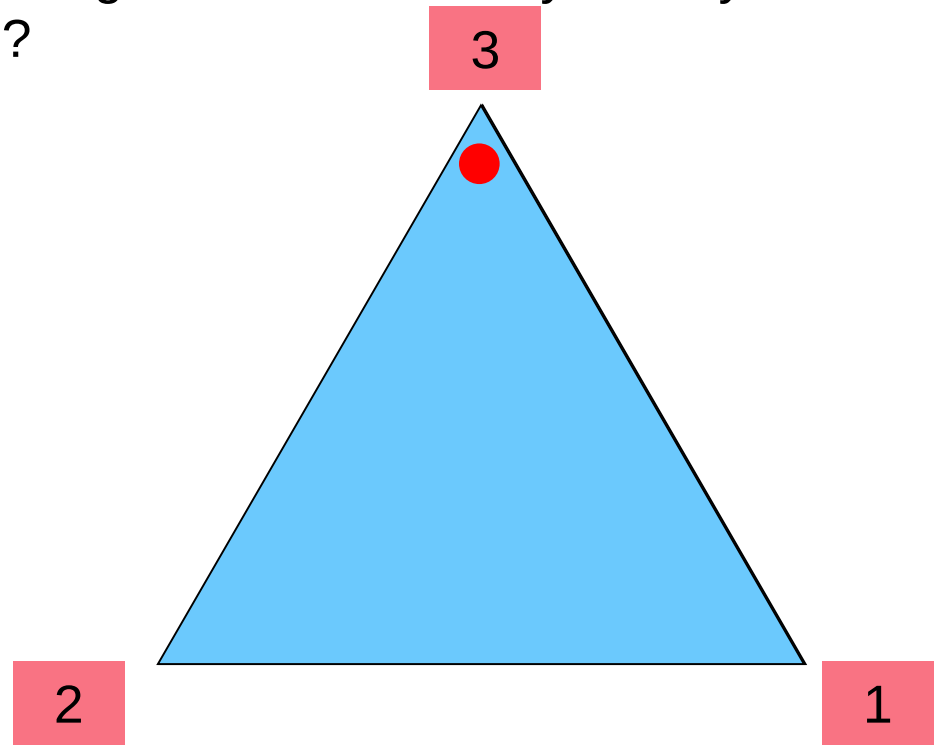
$360^{o} \div 6$

Magnitude of rotational symmetry is 60^{o}

Equilateral Triangle

An equilateral triangle has rotational symmetry of order and magnitude?

3



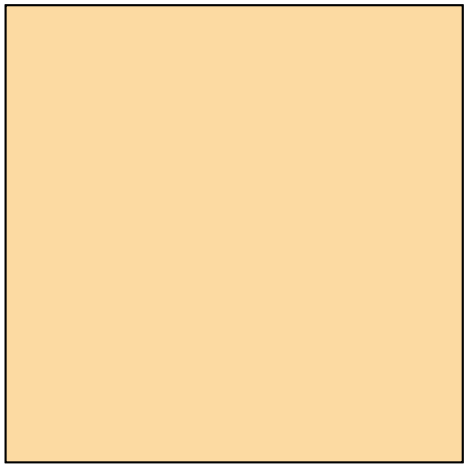
Angle of symmetry: $360^{o} \div$ Order

$360^{o} \div 3$

Magnitude of rotational symmetry is 120^{o}

Square

A square has rotational symmetry of what order and magnitude?



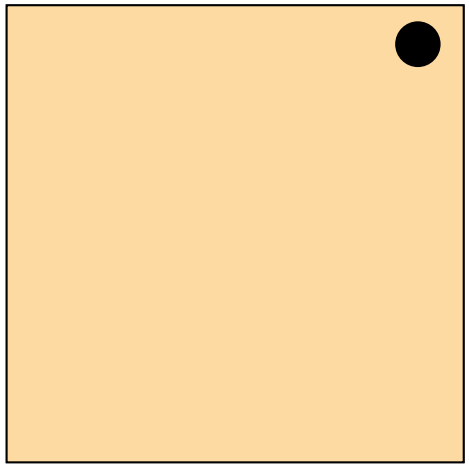
Square

A square has rotational symmetry of what order and magnitude?

4

3

4



2

1

Angle of symmetry: $360^{o} \div$ Order

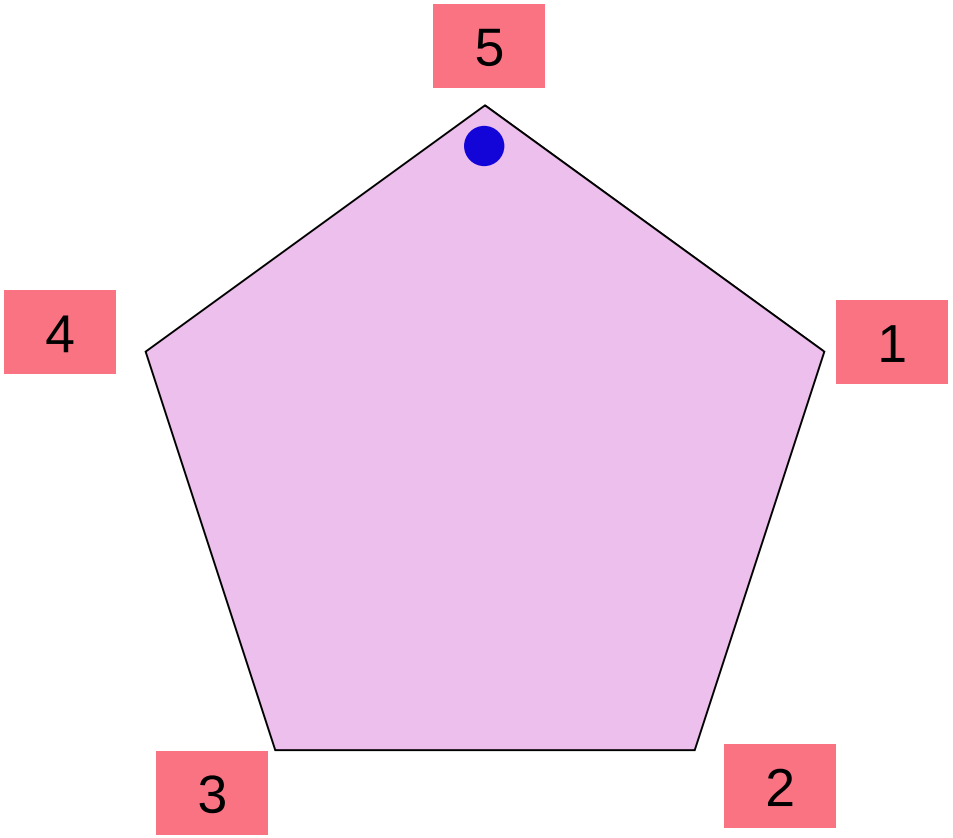
$360^{o} \div 4$

Magnitude of rotational symmetry is 90^{o}

Regular Pentagon

A regular pentagon has order and magnitude of rational symmetry?

5



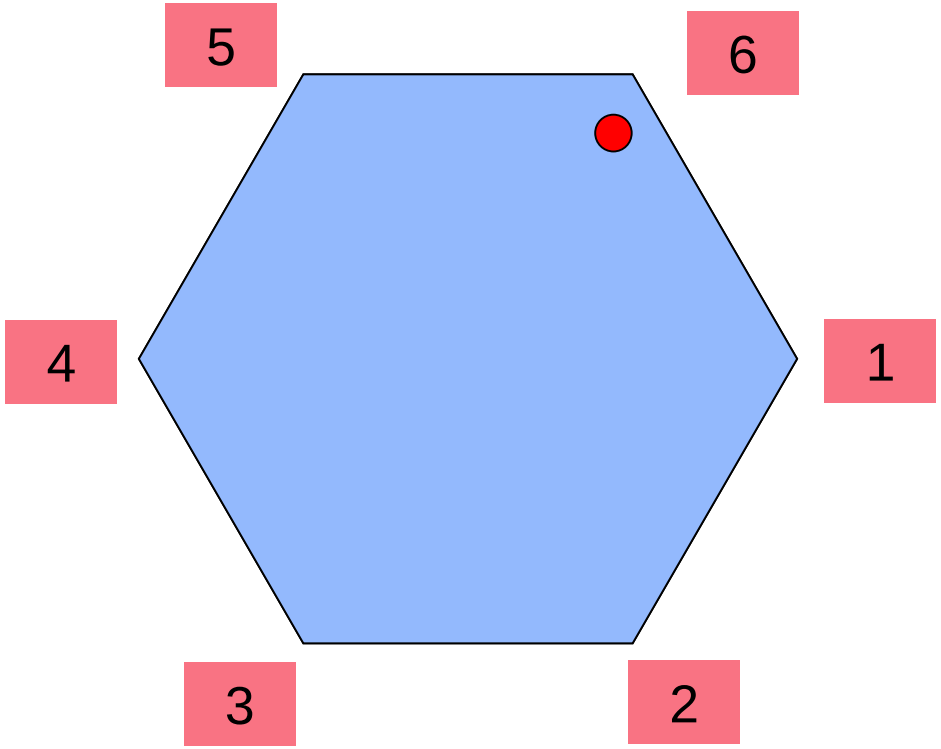
Angle of symmetry: $360^{o} \div$ Order

$360^{o} \div 5$

Magnitude of rotational symmetry is 72^{o}

Regular Hexagon

A regular hexagon has rotational symmetry of order ? 6



Angle of symmetry: $360^{o} \div$ Order

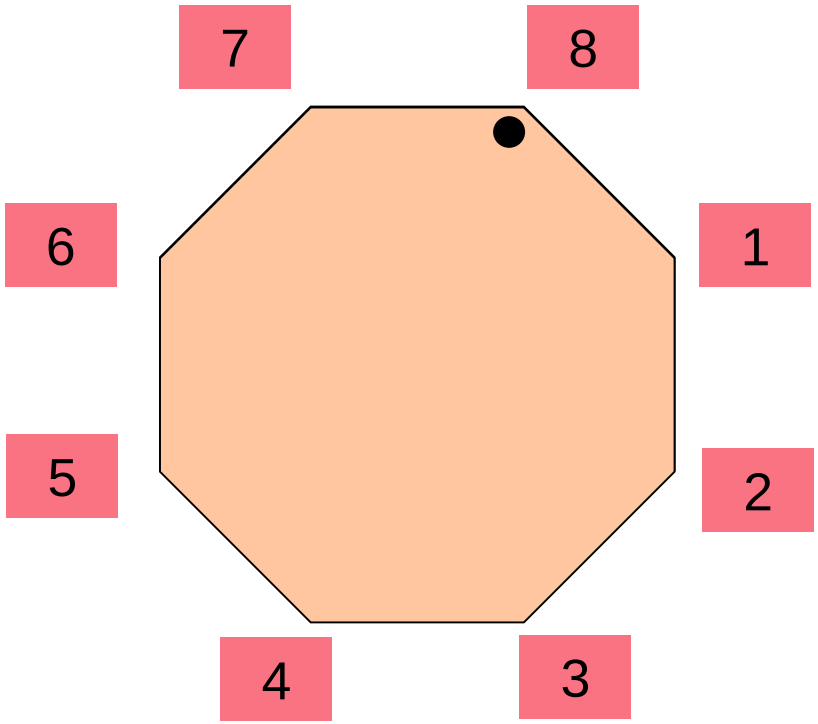
$360^{o} \div 6$

Magnitude of rotational symmetry is 60^{o}

Regular Octagon

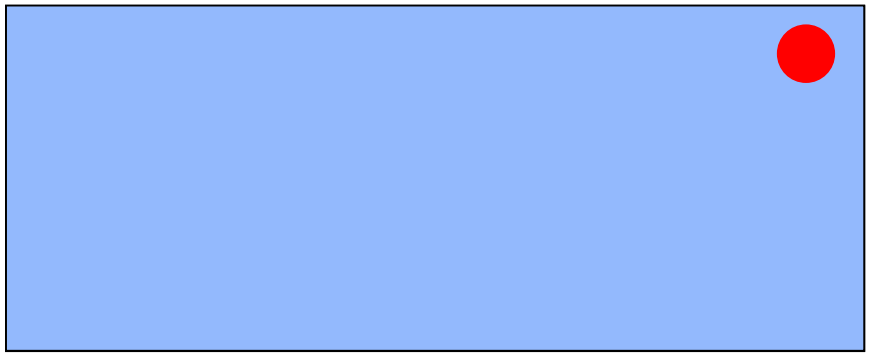
A regular octagon has rotational symmetry of order ?

8



Rectangle

A rectangle has rotational symmetry of order ? 2



2

1

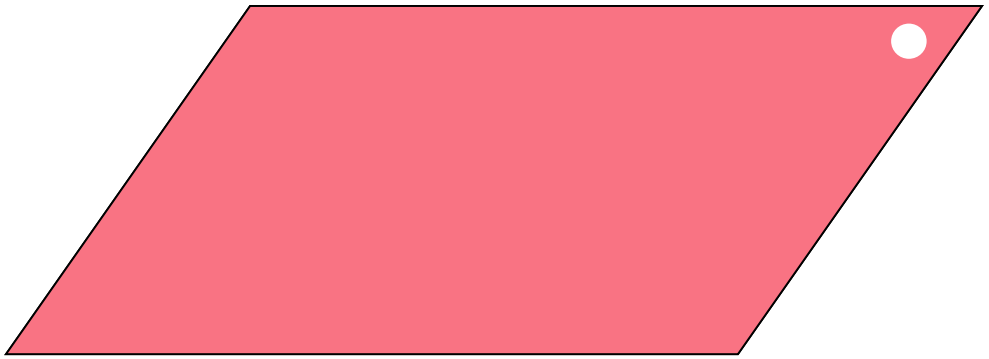
Angle of symmetry: $360^{o} \div$ Order

$360^{o} \div 2$

Magnitude of rotational symmetry is 180^{o}

Parallelogram

A parallelogram has rotational symmetry of order ? 2



Angle of symmetry: $360^{o} \div$ Order

$360^{o} \div 2$

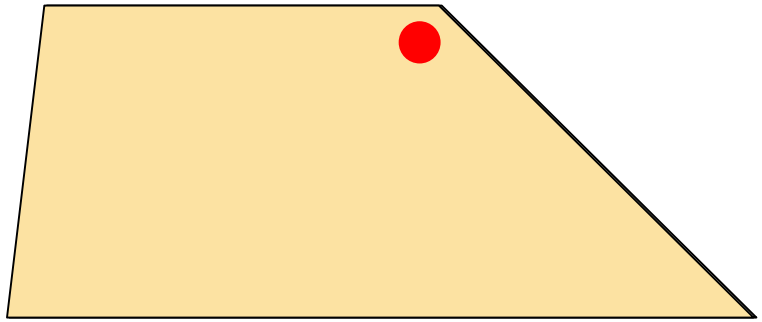
Magnitude of rotational symmetry is 180^{o}

Trapezoid

A trapezoid has rotational symmetry of order ? 1

None

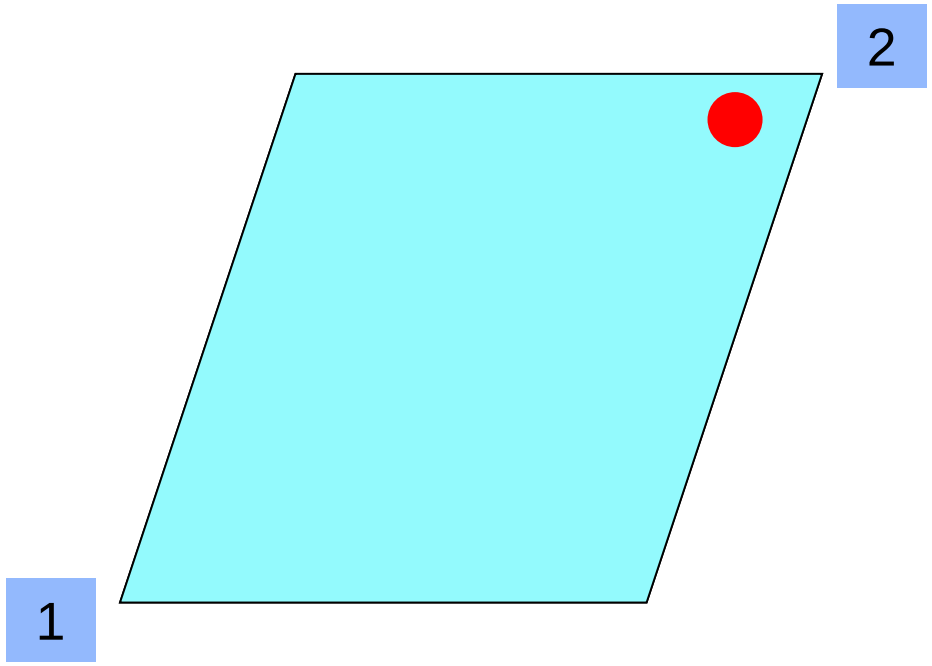
1



Rhombus

A rhombus has rotational symmetry of order ?

2



Angle of symmetry: $360^{o} \div$ Order

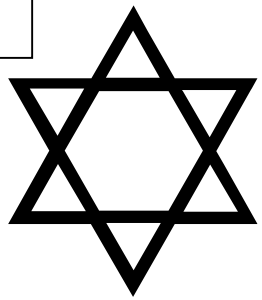
$360^{o} \div 2$

Magnitude of rotational symmetry is 180^{o}

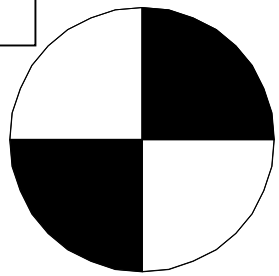
Rotational Symmetry

State the order and magnitude of rotational symmetry for each shape below:

1

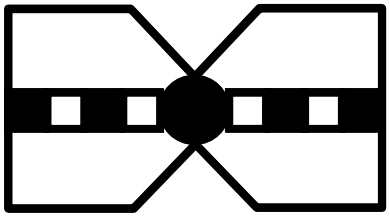


2

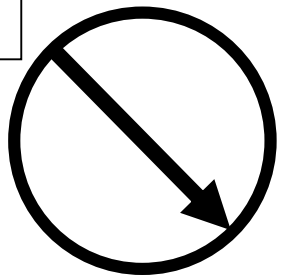


3

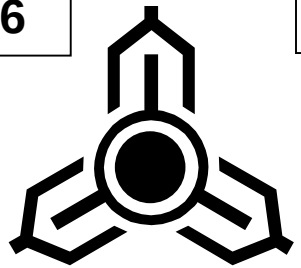
4



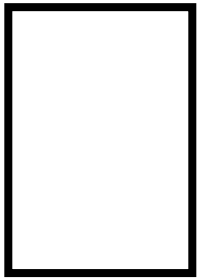
5



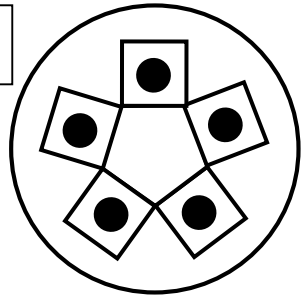
6



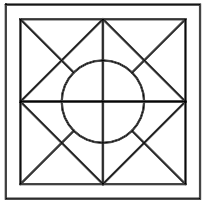
7



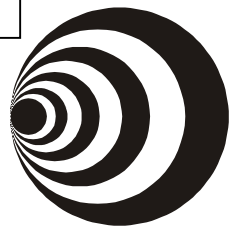
8



9

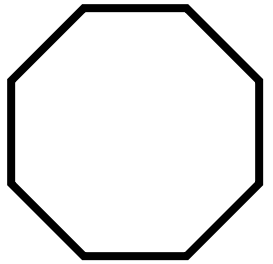


10



11

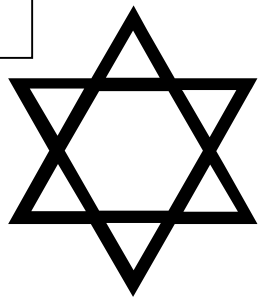
12



Rotational Symmetry

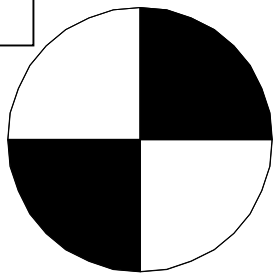
State the order of rotational symmetry for each shape below:

1



Order 6

2

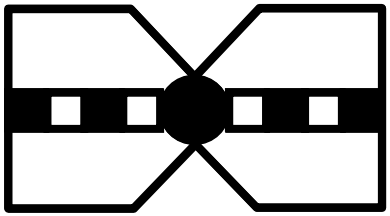


Order 2

3

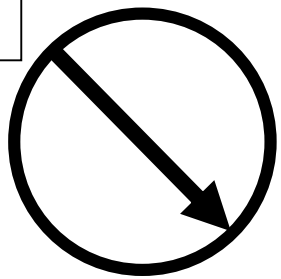
Order 3

4



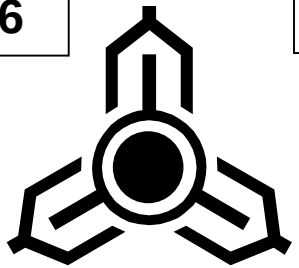
Order 2

5



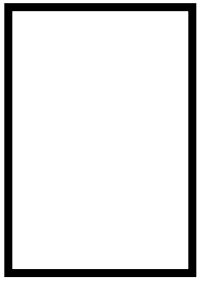
None

6



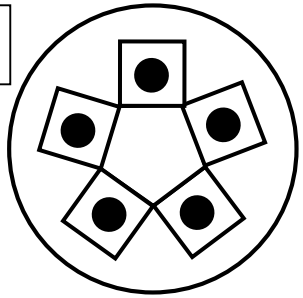
Order 3

7



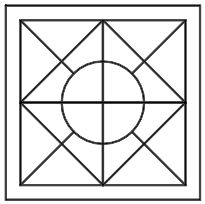
Order 2

8



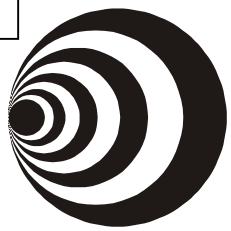
Order 5

9



Order 4

10

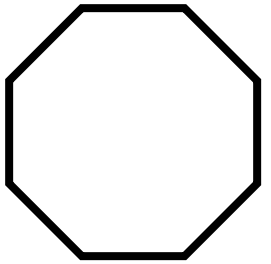


None

11

Order 6

12

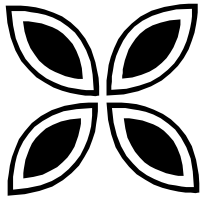


Order 8

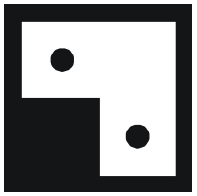
Rotational Symmetry Homework

State the order and magnitude of rotational symmetry for each shape below:

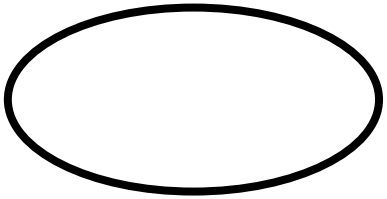
13



14



15



16

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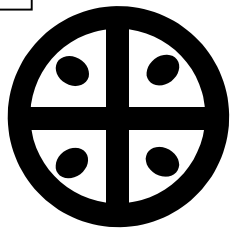
18



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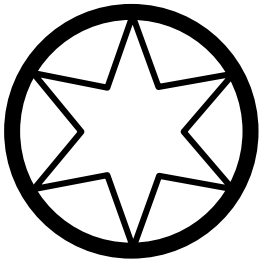

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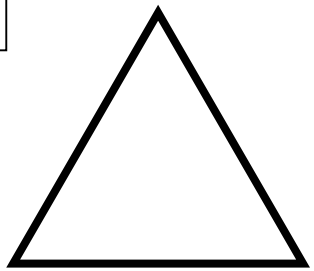

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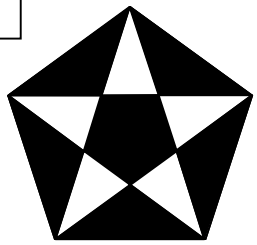

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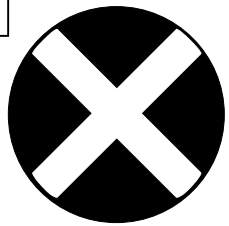

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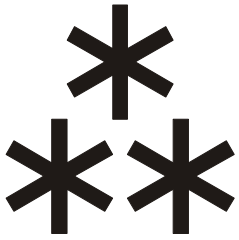

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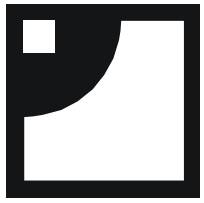
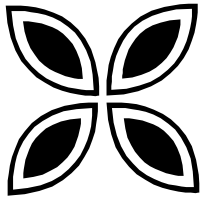


Rotational Symmetry

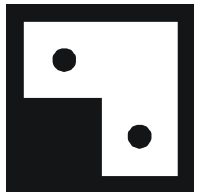
State the order of rotational symmetry for each shape below:

13



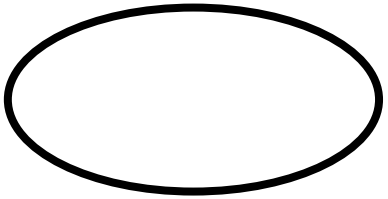
Order 4

14



None

15



Order 2

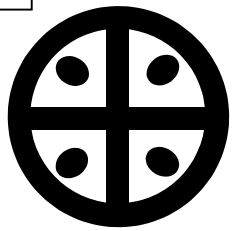
16

Order 5

17

Order 2

18



Order 4

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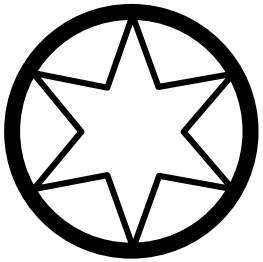
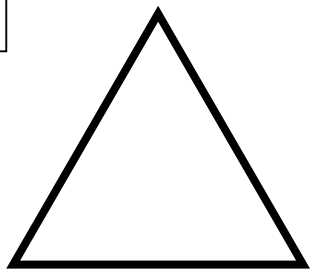


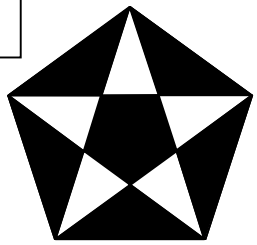
Order 6

20



Order 3

21



Order 5

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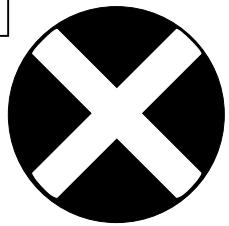

Order 4

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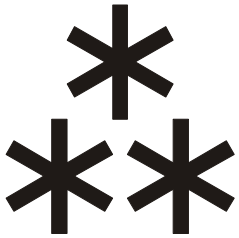

Order 3

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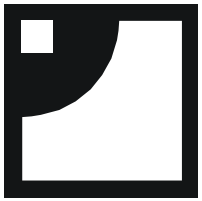

None