Lines of Symmetry of Plane Shapes

Line of Symmetry

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| --- | --- |
| http://www.mathsisfun.com/geometry/images/flame-mirror.jpg |  Here my dog "Flame" has her face made perfectly symmetrical with a bit of photo magic.The white line down the center is the**Line of Symmetry** |

Read more at [Reflection Symmetry](http://www.mathsisfun.com/geometry/symmetry-reflection.html).

Folding Test

You can find if a shape has a Line of Symmetry by**folding it**.

When the folded part sits perfectly on top (all edges matching), then the fold line is a Line of Symmetry.

Here I have folded a rectangle one way, and **it didn't work**.


So this is **not** a Line of Symmetry

But when I try it this way, it **does work** (the folded part sits perfectly on top, all edges matching):


So this **is** a Line of Symmetry

Triangles

A [Triangle](http://www.mathsisfun.com/triangle.html) can have **3**, or **1** or **no** lines of symmetry:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| http://www.mathsisfun.com/geometry/images/symmetry-equilateral-triangle.gif |   | http://www.mathsisfun.com/geometry/images/symmetry-isosceles-triangle.gif |   | http://www.mathsisfun.com/geometry/images/symmetry-scalene-triangle.gif |
| **Equilateral Triangle**(all sides equal, all angles equal) |   | **Isosceles Triangle**(two sides equal, two angles equal) |   | **Scalene Triangle**(no sides equal, no angles equal) |
| **3** Lines of Symmetry |   | **1** Line of Symmetry |   | **No** Lines of Symmetry |

Quadrilaterals

Different types of [Quadrilaterals](http://www.mathsisfun.com/quadrilaterals.html) (a 4-sided plane shape):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| http://www.mathsisfun.com/geometry/images/symmetry-square.gif |   | http://www.mathsisfun.com/geometry/images/symmetry-rectangle.gif |   | http://www.mathsisfun.com/geometry/images/symmetry-irregular-quad.gif |
| **Square**(all sides equal, all angles 90°) |   | **Rectangle**(opposite sides equal, all angles 90°) |   | **Irregular Quadrilateral** |
| **4** Lines of Symmetry |   | **2** Lines of Symmetry |   | **No** Lines of Symmetry |

|  |  |  |
| --- | --- | --- |
| http://www.mathsisfun.com/geometry/images/symmetry-kite.gif |   | http://www.mathsisfun.com/geometry/images/symmetry-rhombus.gif |
| **Kite** |   | **Rhombus**(all sides equal length) |
| **1** Line of Symmetry |   | **2** Lines of Symmetry |

Regular Polygons

A regular [polygon](http://www.mathsisfun.com/geometry/polygons.html) has all sides equal, and all angles equal:

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| --- | --- | --- |
| http://www.mathsisfun.com/geometry/images/symmetry-equilateral-triangle.gif | An **Equilateral Triangle** (3 sides) has **3** Lines of Symmetry |   |
|   | http://www.mathsisfun.com/geometry/images/symmetry-square.gif | A **Square** (4 sides) has **4** Lines of Symmetry |
| http://www.mathsisfun.com/geometry/images/symmetry-regular-pentagon.gif | A **Regular Pentagon** (5 sides) has **5** Lines of Symmetry |   |
|   | http://www.mathsisfun.com/geometry/images/symmetry-regular-hexagon.gif | A **Regular Hexagon** (6 sides) has **6** Lines of Symmetry |
| http://www.mathsisfun.com/geometry/images/symmetry-regular-septagon.gif | A **Regular Heptagon** (7 sides) has **7** Lines of Symmetry |   |
|   | http://www.mathsisfun.com/geometry/images/symmetry-regular-octagon.gif | A **Regular Octagon** (8 sides) has **8** Lines of Symmetry |

And the pattern continues:

* A regular polygon of **9** sides has **9** Lines of Symmetry
* A regular polygon of **10** sides has **10** Lines of Symmetry
* ...
* A regular polygon of **"n"** sides has **"n"** Lines of Symmetry

|  |  |  |
| --- | --- | --- |
| CircleA line (drawn at any angle) that goes through its center is a Line of Symmetry.So a Circle has**infinite** Lines of Symmetry. |   | http://www.mathsisfun.com/geometry/images/circle-symmetry.gif |