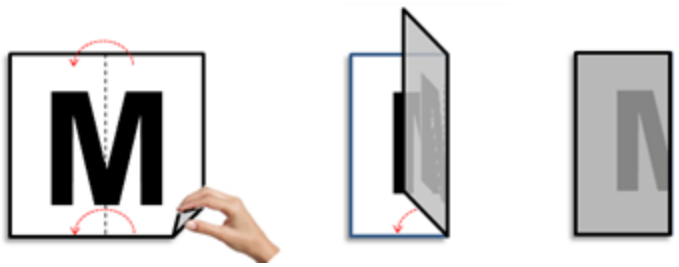
Sec 1.5 Transformations in the Coordinate Plane

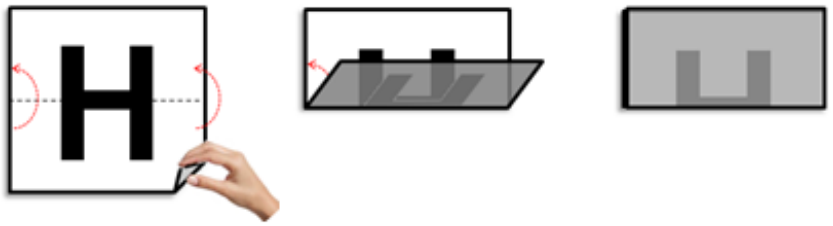
Symmetry Name:

Symmetries

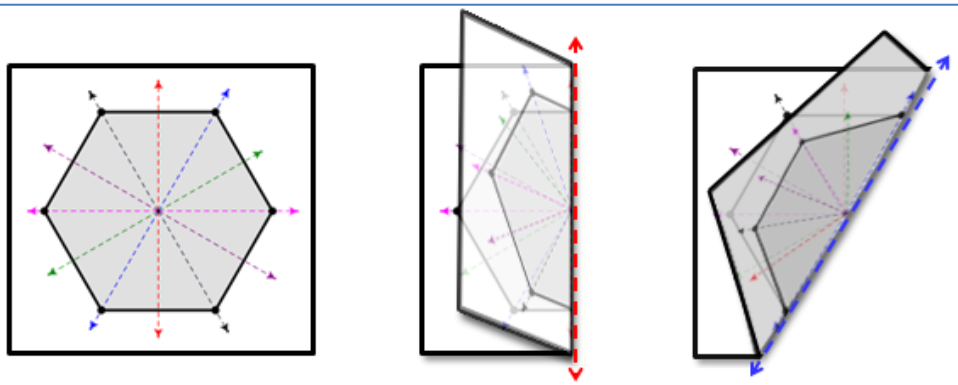
A shape has a **vertical line of symmetry** if you can fold it in half vertically and have the halves match up. On a scrap sheet of paper try folding the letter "M" in half.



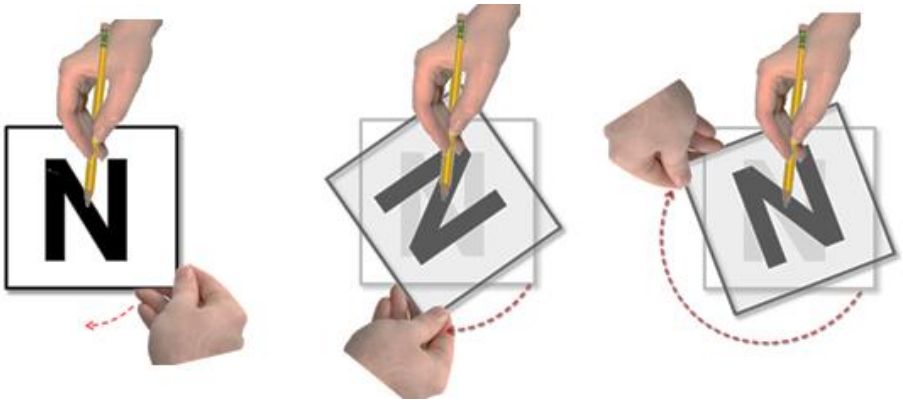
A shape has a **horizontal line of symmetry** if you can fold it in half horizontally and have the halves match up. On a scrap sheet of paper try folding the letter "H" in half.



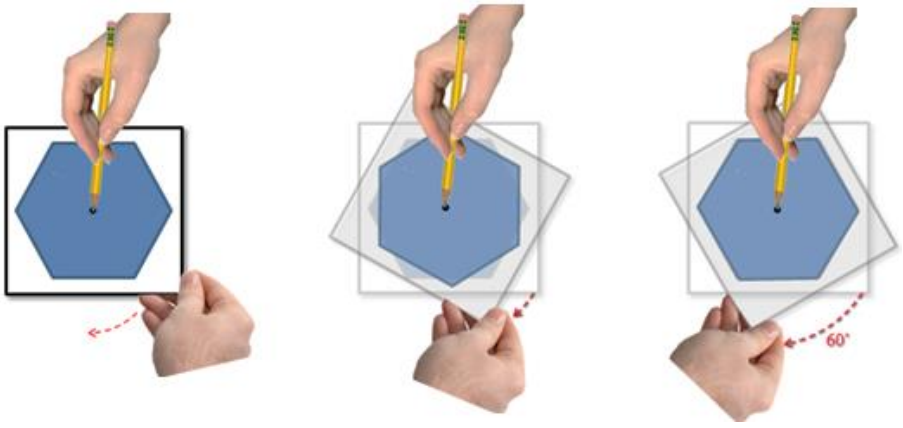
A general **line of symmetry** is any line in which you can fold the shape in half and it maps onto itself. Consider the hexagon at the right has 6 lines of symmetry.



A shape has **point symmetry** if you can rotate the shape 180˚ from a center point and have it look the same as it did before you rotated it. On a scrap sheet of paper try rotating a letter "N" as shown a the right.



A shape has **rotational symmetry** if you can rotate the shape by a set degree from a center point and have it look the same as it did before you rotated it. On a scrap sheet of paper try rotating a hexagon (which has 60˚ rotational symmetry.)



1. Provide 2 Letters of the Alphabet that have a **vertical line of symmetry**.

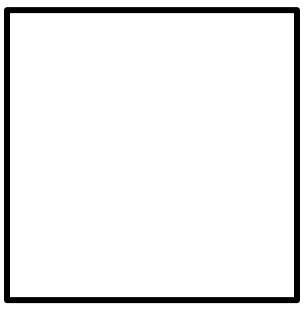
2. Provide 2 Letters of the Alphabet that have a **horizontal line of symmetry**.

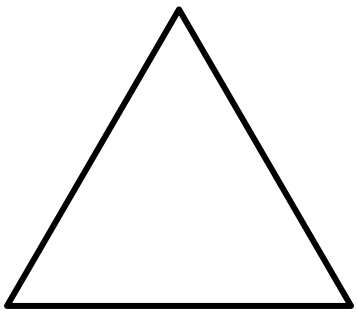
3. Provide 2 Letters of the Alphabet that have both a **horizontal line of symmetry** and **vertical line of symmetry**.

4. Provide a letter of the Alphabet that has **point symmetry** but **NOT** a **vertical line of symmetry.**

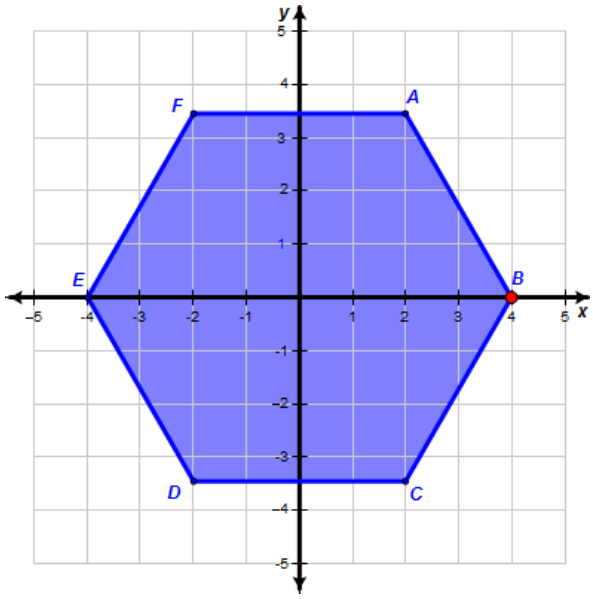
5. Which letter depending on how it's written could have **infinite lines of symmetry**?

6. Draw all the lines of symmetry for the following regular shapes.

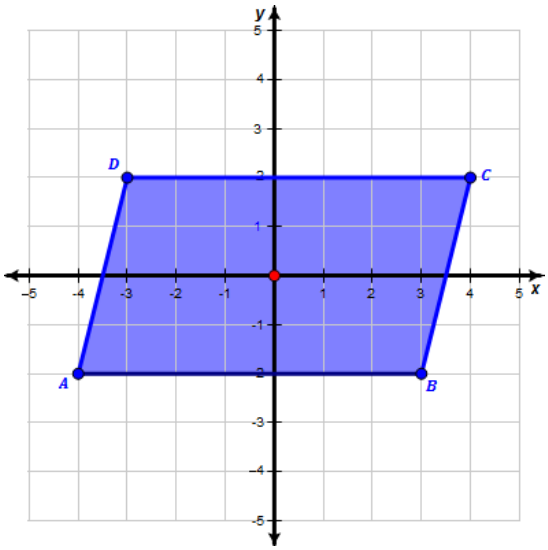




7. Describe in detail at least three transformations that would map hexagon ABCDEF onto itself.



8. Describe any symmetries that parallelogram ABCD might have.



9. Ambigrams are usually words created with point symmetry.