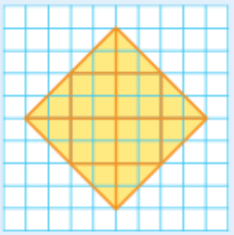
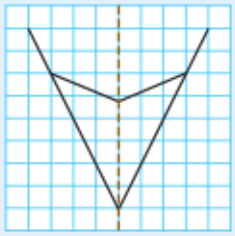
**Practice: Line Symmetry**

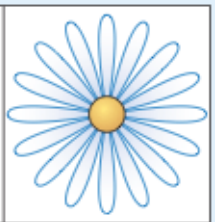
## Key Ideas

- Line symmetry exists whenever a shape or design can be separated into two identical halves by a line of symmetry. The line of symmetry, also known as a line of reflection, may or may not be part of the diagram itself.





- A shape or design can have any whole number of lines of symmetry.

| Shape |  |  |  |
|---|---|---|---|
| Number of Lines of Symmetry | 0 | 2 | 16 |

Describe the lines of symmetry in these images.

- You can complete a symmetric drawing by folding or reflecting one half in the line of symmetry. The opposite halves are mirror images.

OT TO

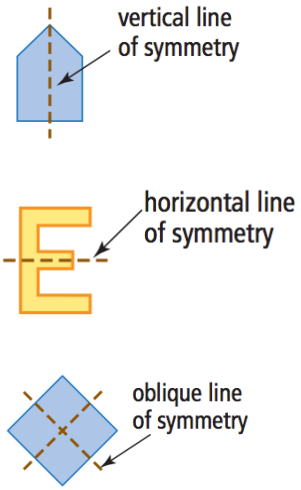
This name has one line of symmetry. If you know the first two letters you can complete the name by reflecting in the dashed line.

**Literacy Link**

If a shape or design has symmetry, then it can be described as *symmetric* or *symmetrical*.

**line symmetry**

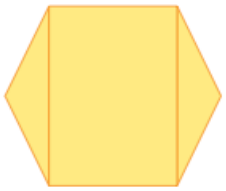
- a type of symmetry where an image or object can be divided into two identical, reflected halves by a line of symmetry
- identical halves can be reflected in a vertical, horizontal, or oblique (slanted) line of symmetry




1. What is the definition of line symmetry? What types of line symmetry are there?

2. What is the difference between line symmetry and line of symmetry?

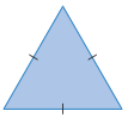
3. Redraw each diagram, showing all lines of symmetry.

a) 

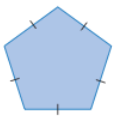
b) 

c) 

4. Which figures have only two lines of symmetry? Explain how you know.

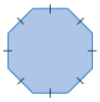
A 

B 

C 

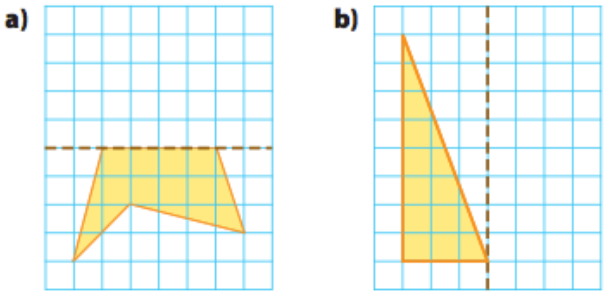
D 

E 

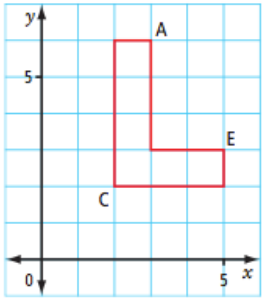
F 

**Practice: Line Symmetry**

5. If the dashed line is the line of symmetry, what does the complete diagram look like? Sketch your diagrams on grid paper.




6. Copy the figure on a coordinate grid.




a) Draw the reflection image if the y-axis is the line of reflection. Label the reflected verticies A', C' and E'.

b) What are the coordinates of A', C' and E' in your drawing in part a)?

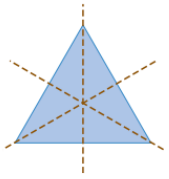
c) Do the original figure and its reflection image show line symmetry? Explain.

7. Consider the upper-case block letters of the English alphabet.

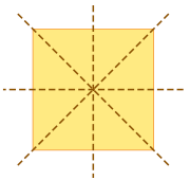
A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z

a) Which letters have a horizontal line of symmetry?
b) Which letters have a vertical line of symmetry?
c) Which letter(s) have both horizontal and vertical lines of symmetry?

8. Margaux is exploring regular polygons and line symmetry. She discovers that



i) an equilateral triangle has three interior angles and three lines of symmetry
ii )a square has four interior angles and four lines of symmetry
iii) a regular pentagon has five interior angles and five lines of symmetry



a) Work with a partner to continue Margaux's exploration for a regular hexagon, heptagon and octagon.
b) What pattern do you discover?
c) Does this pattern continue beyond an octagon? How do you know?