

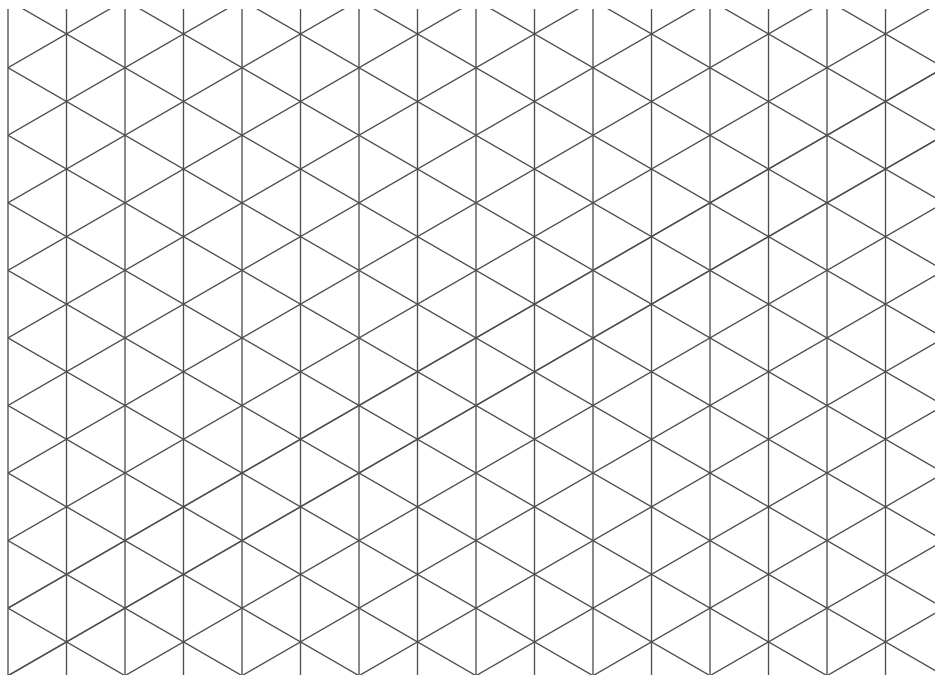


Grid Moves

Let's transform some figures on grids.

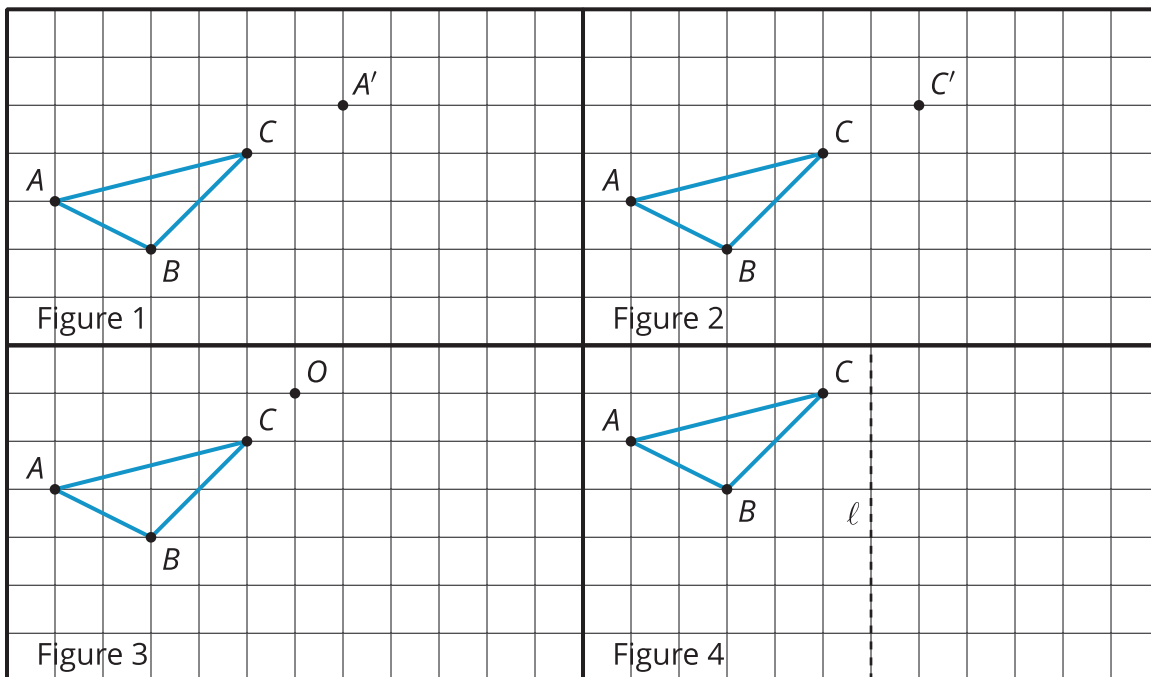
3.1 Notice and Wonder: The Isometric Grid

What do you notice? What do you wonder?

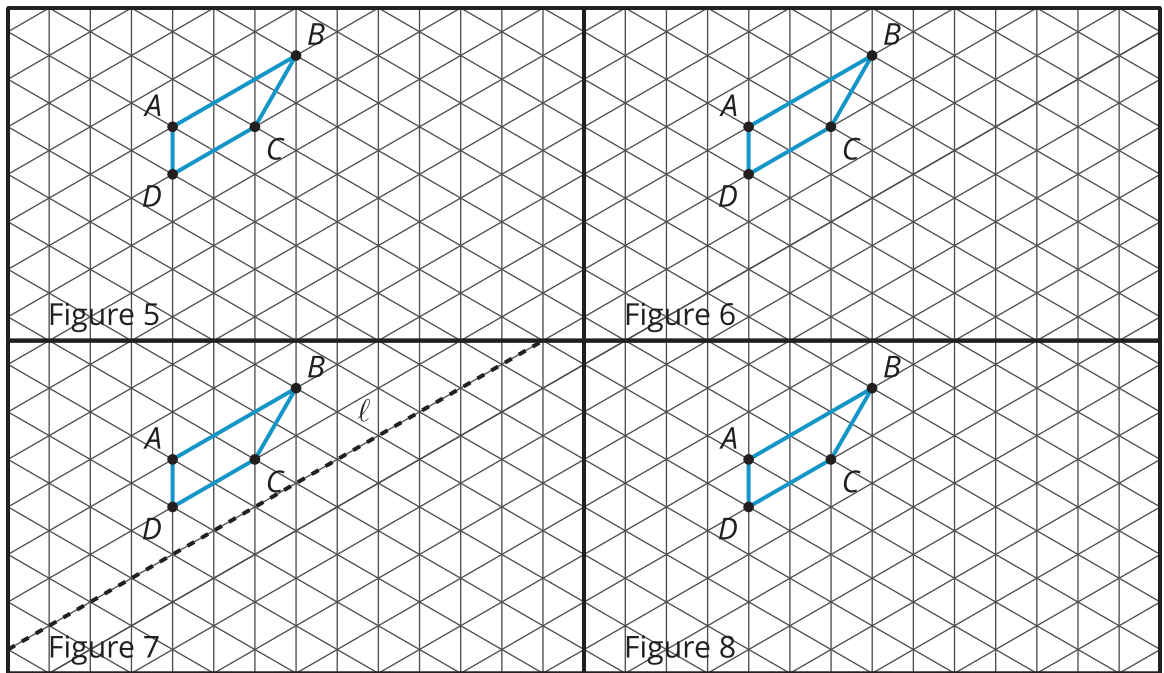


3.2 Image Information

Your teacher will give you tracing paper to carry out the moves specified. Use A' , B' , C' , and D' to indicate vertices in the new figure that correspond to the points A , B , C , and D in the original figure.



1. In Figure 1, translate triangle ABC so that A goes to A' .
2. In Figure 2, translate triangle ABC so that C goes to C' .
3. In Figure 3, rotate triangle ABC 90° counterclockwise using center O .
4. In Figure 4, reflect triangle ABC using line ℓ .



5. In Figure 5, rotate quadrilateral $ABCD$ 60° counterclockwise using center B .
6. In Figure 6, rotate quadrilateral $ABCD$ 60° clockwise using center C .
7. In Figure 7, reflect quadrilateral $ABCD$ using line ℓ .
8. In Figure 8, translate quadrilateral $ABCD$ so that A goes to C .

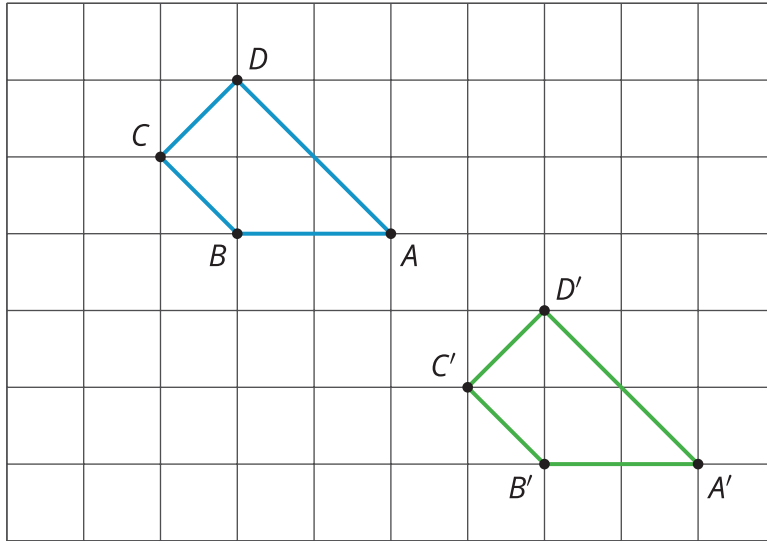
Are you ready for more?

The effects of each move can be “undone” by using another move. For example, to undo the effect of translating 3 units to the right, we could translate 3 units to the left. What move undoes each of the following moves?

1. Translate 3 units up
2. Translate 1 unit up and 1 unit to the left
3. Rotate 30° clockwise around a point P
4. Reflect across a line ℓ

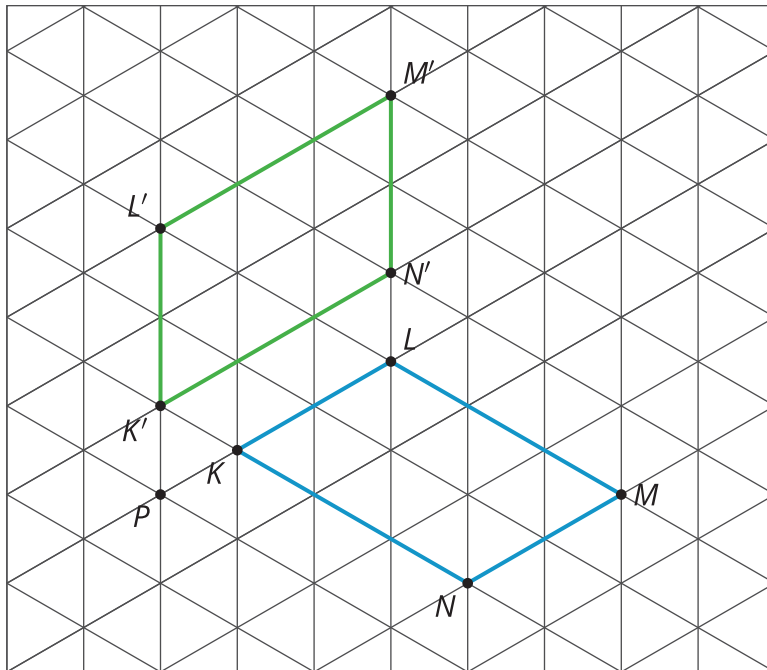
Lesson 3 Summary

When a figure is on a grid, we can use the grid to describe a move. For example, here is a figure and an **image** of the figure after a move.



Quadrilateral $ABCD$ is translated 4 units to the right and 3 units down to the position of quadrilateral $A'B'C'D'$.

This type of grid is called an *isometric grid*. The isometric grid is made up of equilateral triangles. The angles in the triangles all measure 60° , making the isometric grid convenient for showing rotations of 60° .



Here is quadrilateral $KLMN$ and its image $K'L'M'N'$ after a 60-degree counterclockwise rotation around a point P .