

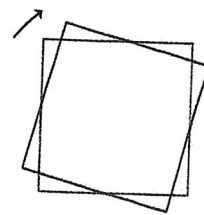
# Unit 1A Vocabulary

## Glossary

### clockwise

An object is rotating clockwise if it is turning in the same way that the hour or minute hand goes around a clock.

The tilted square is rotated  $15^\circ$  clockwise from the square sitting horizontally on its base.

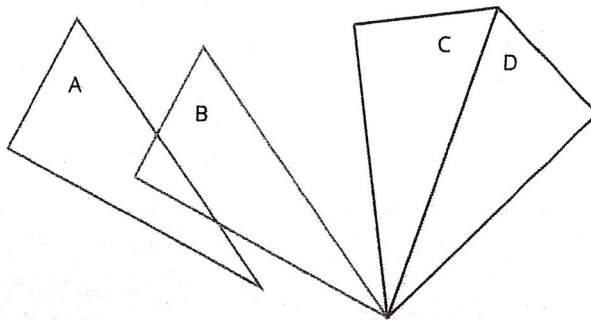


### congruent

One figure is congruent to another if there is a rigid transformation (a sequence of translations, rotations, and reflections) that moves the first figure so that it fits exactly over the second. The second figure is called the image of the rigid transformation. If a part of the first figure matches up with a part of the image, we call them corresponding parts. The part could be an angle, point, or side, and you can have corresponding angles, corresponding points, or corresponding sides.

If you have a distance between two points in the first figure, then the distance between the corresponding points in the image is called the corresponding distance.

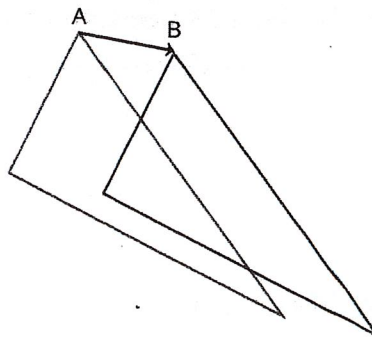
Triangle A is congruent to triangle D. A translation takes triangle A to triangle B, a rotation takes triangle B to triangle C, and a reflection takes triangle C to triangle D.



### translation

A translation has a distance and a direction. It moves every point in a figure the given distance in the given direction.

The figure on the left is translated to the figure on the right in the direction from A to B, using the distance from A to B.

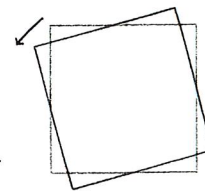


### corresponding (angles, distances, parts, points, sides)

See congruent.

### counterclockwise

An object is rotating counterclockwise if it is turning in the opposite way to the way that the hour or minute hand goes around a clock.



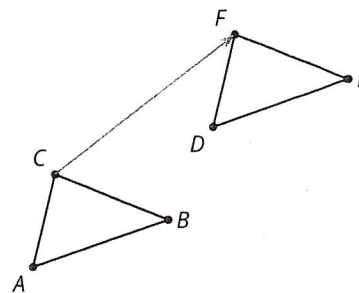
The tilted square is rotated  $15^\circ$  counterclockwise from the square with a horizontal base.

### image

Translations, rotations, and reflections move objects in the plane. Points, segments, and other parts of the original all have corresponding parts on the "moved object." The moved object is called the **image**.

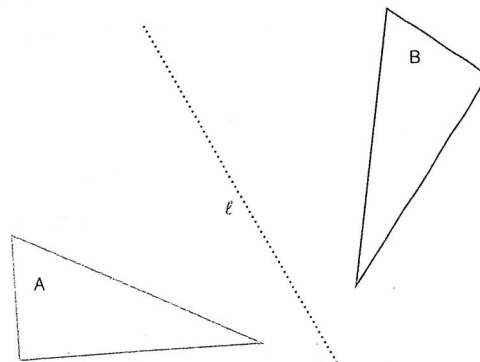
For example, here is triangle  $ABC$  and a translation to the right and up which is labeled  $DEF$ .

Point  $F$  in the image corresponds to point  $C$ , segment  $EF$  in the image corresponds to segment  $BD$ , and angle  $DEF$  corresponds to angle  $ABC$ .



### reflection

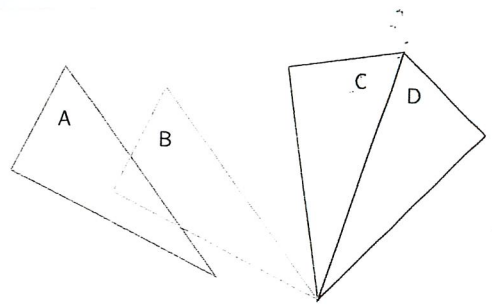
The reflection of a figure in a line takes every point of the figure to a point directly opposite to it on the other side of the line and the same distance from the line. In the figure, the triangle  $B$  is the reflection of the triangle  $A$  in the line  $\ell$ .



### rigid transformation

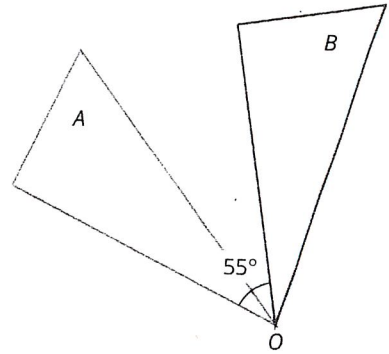
A rigid transformation is a sequence of translations, rotations, and reflections. If a rigid transformation is applied to a geometric figure, the resulting figure is called the image of the original figure under the transformation.

The diagram shows a rigid transformation consisting of a translation (from A to B) followed by a rotation (from B to C) followed by a reflection (from C to D). The last triangle is the image of the first triangle under this rigid transformation.



### rotation

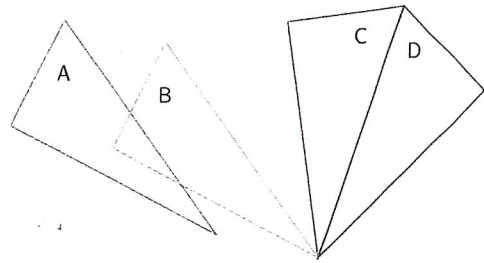
A rotation has a center, an angle, and a direction. It moves every point of a figure in a circle around the center, in the direction specified (clockwise or counterclockwise), and for a distance specified by the angle. For example, in the figure, triangle A is rotated  $55^\circ$  clockwise about center O to get triangle B.



### sequence of transformations

A sequence of transformations is a set of translations, rotations, reflections, and dilations performed in a particular order on a geometric figure, resulting in a final figure.

The diagram shows a sequence of transformations consisting of a translation (from A to B) followed by a rotation (from B to C) followed by a reflection (from C to D). The last triangle is the final figure resulting from the sequence.



### transformation

A transformation is a translation, rotation, reflection, or dilation, or combination of these. There is also a more general concept of a transformation of the plane that is not discussed in grade 8.

### vertical angles

A pair of vertical angles is a pair of angles that are across from each other at the point where two lines intersect. There are two pairs of vertical angles.

