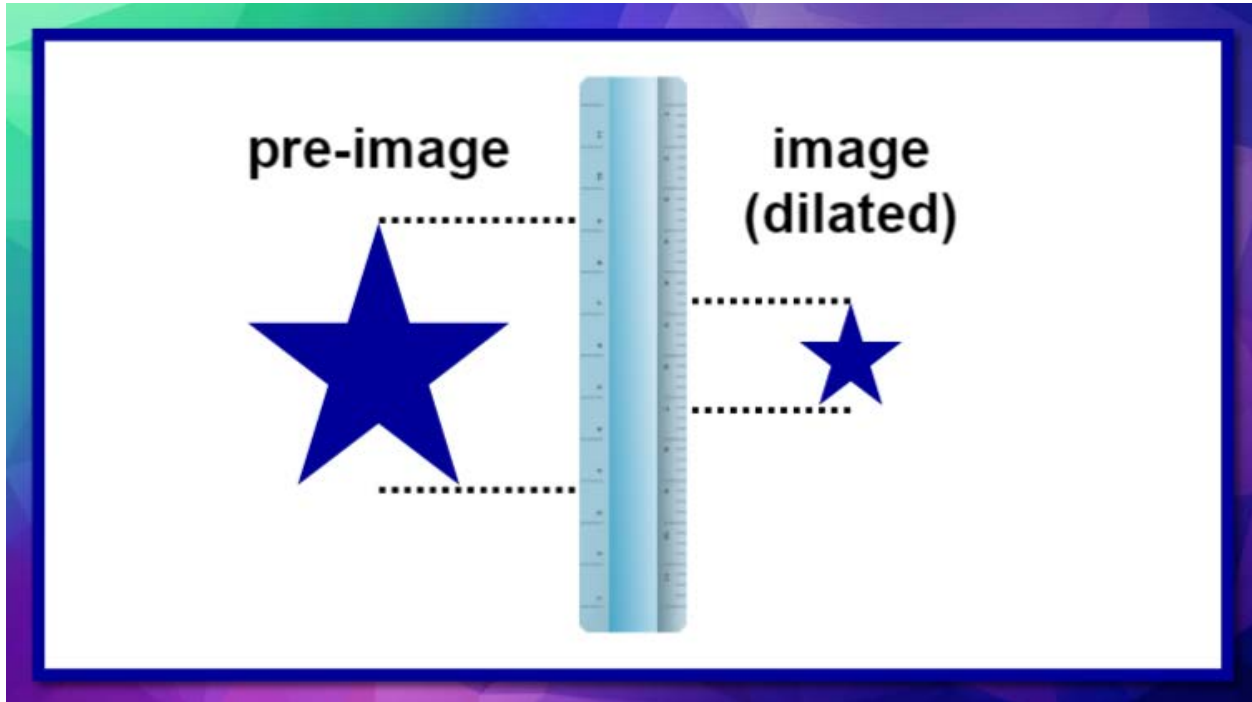


## Module 4: Angles Symmetry and Transformations

### Topic 5 Content: Characteristics of Dilations

#### Description



A dilation is a transformation in which an image is either enlarged or reduced. The *shape* of the image stays the same, but the *size* of the image changes.

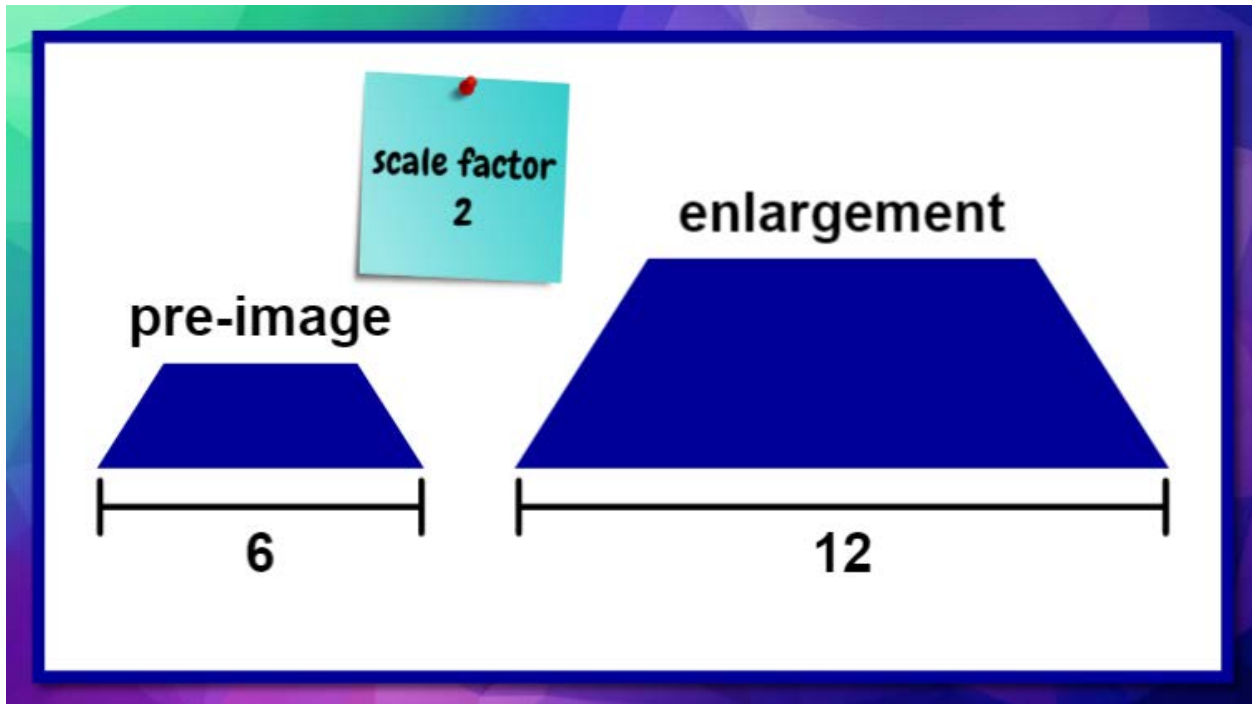
A dilated image and its pre-image are similar shapes, but they are not congruent.

Click ***NEXT*** to continue.

## Module 4: Angles Symmetry and Transformations

### Topic 5 Content: Characteristics of Dilations

#### Enlargements



The scale factor is the ratio that exists between the corresponding lengths of two similar geometric figures.

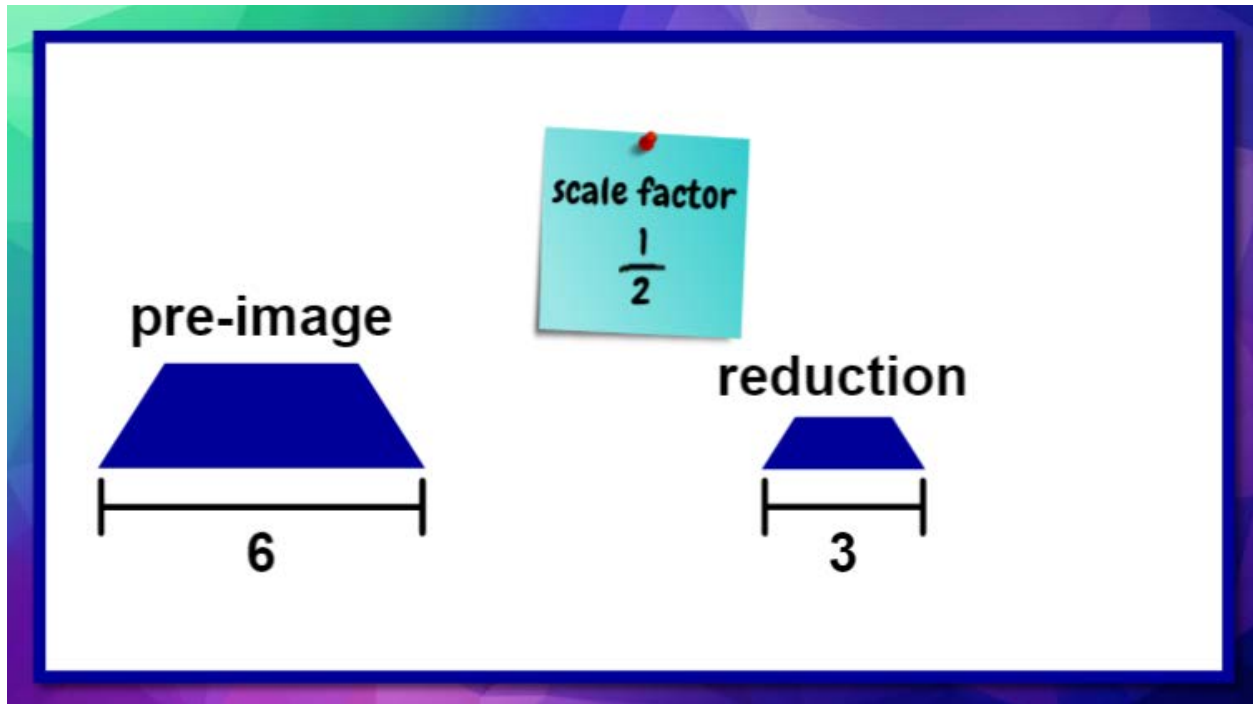
If the scale factor is greater than 1, then the dilation is an enlargement. For example, if the scale factor is 2, then the sides of the dilated image will be twice as long as the sides of the pre-image.

Click *NEXT* to continue.

## Module 4: Angles Symmetry and Transformations

### Topic 5 Content: Characteristics of Dilations

#### Reductions



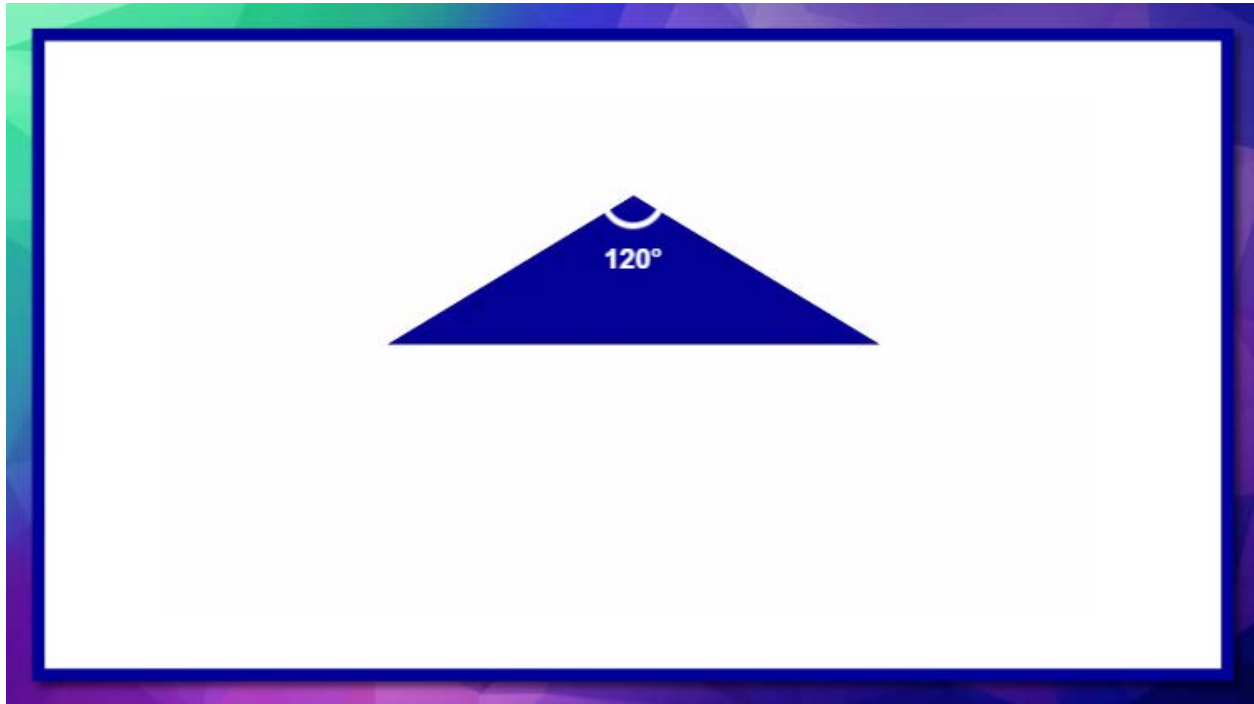
If the scale factor is less than 1, then the dilation is a reduction. For example, if the scale factor is  $\frac{1}{2}$ , then the sides of the dilated image will be half as long as the sides of the pre-image.

Click ***NEXT*** to continue.

## Module 4: Angles Symmetry and Transformations

### Topic 5 Content: Characteristics of Dilations

#### Congruent Angles



In a dilation, the lengths of the sides increase or decrease while the angle measures remain the same, thus preserving the shape.

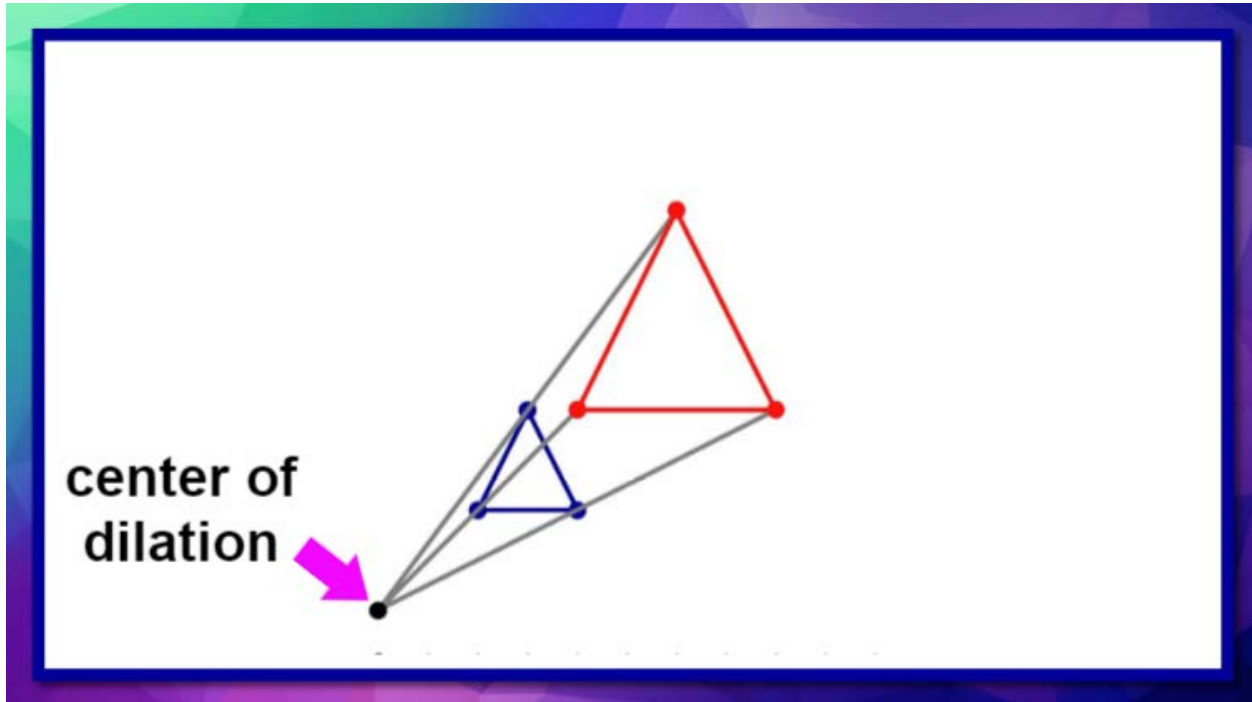
Notice that even though the lengths of the sides changed, the angle measures remain the same to preserve the shape. If the angle measures change, then the image is not a dilation because the angle measures determine the shape.

Click ***NEXT*** to continue.

## Module 4: Angles Symmetry and Transformations

### Topic 5 Content: Characteristics of Dilations

#### Center of Dilation



A dilation always has a reference point called the center of dilation. All the other points of the dilation expand or contract around this fixed point.

The center of dilation can be on the pre-image itself. Other times, the center of dilation is a point outside of the image.

On the coordinate plane, the center of dilation is the origin unless otherwise noted.

If you connect the corresponding points of the image and pre-image with a straight line, you can determine the center of dilation. The point where all the lines intersect is the center of dilation.