Vocabulary: Dilations



**Vocabulary**



* Dilation – an enlargement or reduction of a figure.
	+ In the figure shown to the right, the preimage, Δ*ABC*, has been dilated by a scale factor of 0.5 to get the image, Δ*JKL*.
	+ A dilation preserves shape, but not necessarily size, so the preimage and image are similar.
* Image – a figure that has been transformed, compared to the original figure (the preimage).
	+ Transformations include resizing, reflecting, rotating, or translating a figure.
* Matrix – a rectangular array of numbers and/or variables.
	+ The matrix shown to the right has 2 rows and 3 columns, so it is a 2 × 3 matrix.
	+ Each number or variable in a matrix is called an *element*.
* Preimage – the original figure, before being transformed.



* Scalar – a constant number that a matrix is multiplied by.
* The matrix shown to the right is being multiplied by the scalar 2.

* Scale factor – the ratio of the lengths of the corresponding sides of two similar figures.
	+ For example, the sides of *EFGH* are twice as long as the sides of *ABCD*, so the ratio of the lengths of each pair of corresponding sides is 2.
	+ All dilations can be described by a scale factor.
* Transformation – a change in the size, shape, direction, or position of a figure.
* Transformations that don’t change the size or shape of images are *isometric*, and include reflections, rotations, and translations.
* Other transformations such as dilating (resizing) are not isometric.