

REVIEW

So far for transformations, we have covered:

- **translations** (sliding a figure)
- **rotations** (turning a figure)
- **reflections** (flipping a figure)

NEW

We have 2 more types of transformations to cover:

- **scaling**
- **homothety (dilation)**

You are increasing or decreasing the SIZE of the shape for these kinds of transformations

2 types of SCALING:

A. Horizontal (you are multiplying the x value by a number, and the y is staying the same)

written as: $(x, y) \rightarrow (kx, y)$

example:

$$(x, y) \rightarrow (2x, y)$$

$$A(3, 4) \rightarrow (6, 4)$$

In this case your shape will be twice as wide. Since you are making it bigger, it is called a **stretch**. If the number you are multiplying by is between 0 and 1 (making it smaller) it is called a **compression**.

B. Vertical (you are multiplying the y value by a number, and the x is staying the same)

In this case your shape will be twice as tall. Since you are making it bigger, it is called a **stretch**. If the number you are multiplying by is between 0 and 1 (making it shorter) it is called a **compression**.

written as: $(x, y) \rightarrow (x, ky)$

example:

$$(x, y) \rightarrow (x, 2y)$$

$$A(3, 4) \rightarrow (3, 8)$$

HOMOTHETY(Dilation):

In this case you are changing the whole thing (horizontal and vertical) and making your whole shape bigger or smaller.

written as: $h(o, k): (x, y) \rightarrow (kx, ky)$

example:

$$h(0, 3)$$

$$A(3, 4) \rightarrow (9, 12)$$









