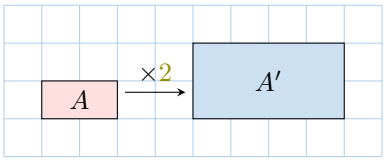
# ENLARGEMENT AND REDUCTION

## A WHAT ARE ENLARGEMENT AND REDUCTION?

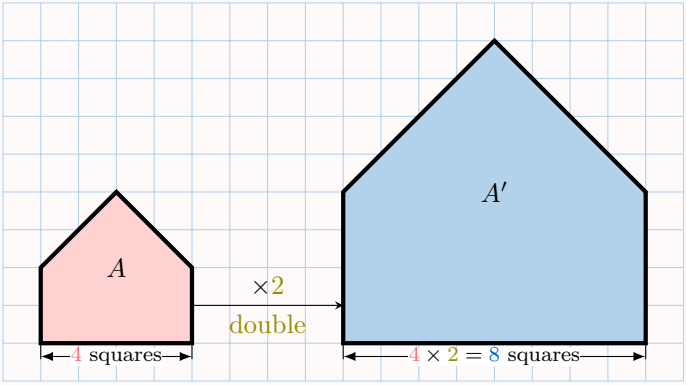
**Discover:** Look at the rectangles below. They have the same shape but different sizes. This happens when all side lengths are multiplied by the same number.




Rectangle $A$ is enlarged to $A'$ by doubling its side lengths (multiplying each side by 2). Notice how the width and height both double.

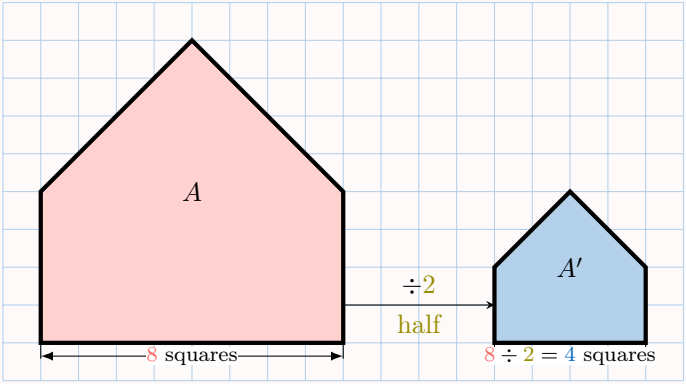
Definition **Enlargement and Reduction**

- An **enlargement** makes a shape larger by multiplying all side lengths by a number called the scale factor. In an enlargement, the scale factor is greater than 1.




In this example, shape $A$ is enlarged to $A'$ by multiplying each side length by 2 (scale factor = 2). The bottom side grows from 4 to 8 squares.

- A **reduction** makes a shape smaller. One way to do this is to divide all side lengths by the same number. This is the same as multiplying all side lengths by a scale factor between 0 and 1.




In this example, shape $A$ is reduced to $A'$ by dividing its side lengths by 2. This is the same as multiplying by the scale factor $\frac{1}{2}$. The bottom side shrinks from 8 to 4 squares.