

MATH 191 FUNDAMENTALS OF MATHEMATICS II
12.5: SHEARING AND CAVALIERI'S PRINCIPLE
FEBRUARY 19, 2014

Shearing: Changing Shape Without Changing Area

The process of *shearing* changes a shape into a new shape with the same area and gives us a new perspective on the formulas for the areas of parallelograms and triangles.

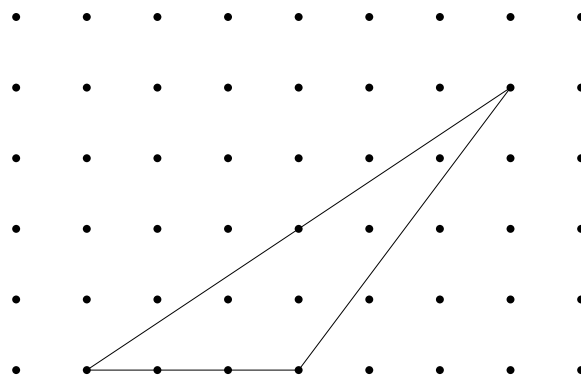
How to imagine shearing a polygon:

- Pick a _____ of the polygon to be the _____.
- Imagine slicing the polygon into _____ that are _____ to the base.
- Imagine _____. The base remains _____ and the thin strips slide over, remaining _____ to the base and _____ from the base.
- A good way of visualizing shearing is to think of a _____ which you _____.

Cavalieri's Principle says that shearing a shape _____.

Shearing can change the _____ of the shape, but some things that do not change:

- The strips keep the same _____ and _____. They are not compressed.
 - The _____ of the stack of strips does not change.
1. Draw at least two possible triangles you could get by shearing the triangle below. How can you shear it make a right triangle?



2. Draw at least two possible parallelograms you can get by shearing the parallelogram below. How can you shear it to make a rectangle?

