

Folding Problem

Driscoll, 2007, p. 90, <http://heinemann.com/products/E01148.aspx>

For each part of the problem, start with a square sheet of paper and make folds to construct a new shape. Then, explain how you know the shape you constructed has the specified area.

1. Construct a square with exactly $\frac{1}{4}$ the area of the original square. Convince yourself that it is a square and has $\frac{1}{4}$ of the area.
2. Construct a triangle with exactly $\frac{1}{4}$ the area of the original square. Convince yourself that it has $\frac{1}{4}$ of the area.
3. Construct another triangle, also with $\frac{1}{4}$ the area, that is not congruent to the first one you constructed. Convince yourself that it has $\frac{1}{4}$ of the area.
4. Construct a square with exactly $\frac{1}{2}$ the area of the original square. Convince yourself that it is a square and has $\frac{1}{2}$ of the area.
5. Construct another square, also with $\frac{1}{2}$ the area, that is oriented differently from the one you constructed in 4. Convince yourself that it has $\frac{1}{2}$ of the area.