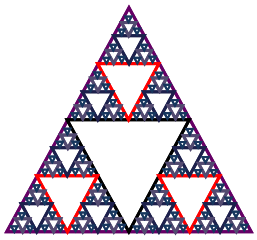
7.1 Isometric vs. Similar Figures

- **ISOMETRY** is a transformation that preserves side lengths and angle measurements. Examples:
  Rotation, Reflection or a composite of them
- The result (image) and the original are called **ISOMETRIC FIGURES** or **CONGRUENT FIGURES** (notation: ≅)
- **SIMILITUDE** is a transformation that results in a similar figure, but bigger/smaller in size. Example: Dilatation
- The result (image) is **SIMILAR** (notation: ~) to the original: angles are congruent (to preserve the shape), but sides are proportional.

Translation,

The Sierpinski triangle is made entirely of **SIMILAR** triangles.



All of the triangles in this shape are SIMILAR because…

(1) All of the triangles contain the same angles.

(2) All of the side lengths of a triangle are scaled down by the same ratio of similarity k

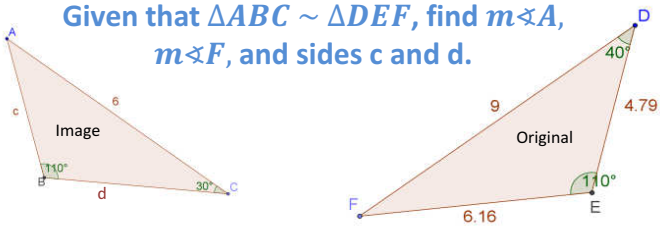
Ratio of similarity (scale factor): k

The ratio of similarity (scale factor) is

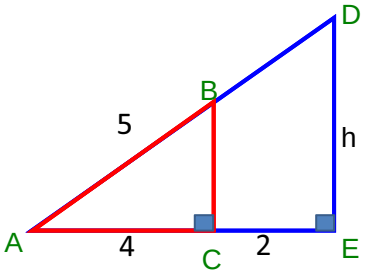
$$k = \frac{side\ length\ from\ the\ image}{side\ length\ from\ the\ original\ figure}$$

$$k = \frac{l_{new}}{l_{old}} = \frac{s\prime}{s}$$

Given that $\Delta ABC \sim \Delta DEF$, find $m\measuredangle A$, $m\measuredangle F$, and sides c and d.



Ex I: Finding an unknown side given 2 similar triangles



Practice: p. 216 # 1-5