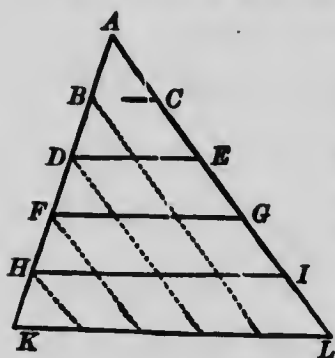


1. Point out in this figure the triangles that have the same shape. These triangles are *similar*. Can you prove that the angles of the



triangle AFG are equal to the angles of the triangle AKL ? The sides opposite equal angles are called *homologous* sides. Name the homologous sides of the two similar triangles AHI and AKL ; of ADE and AFG . In what ratio is AD to AF ? AE to AG ? What proportion is there between the homologous sides of the two triangles ADE and AFG ? between the homologous sides of AFG and AKL ?

2. Draw a triangle. Draw a line through two sides of the triangle parallel to the third side. What can you say of the sides? Express the proportion. Show the proportion by applying numbers to sides.

3. Draw two similar triangles, each having the angles 45° and 90° ; each having angles 60° and 40° .

4. Draw two similar equilateral triangles whose homologous sides are in the ratio of 3 to 4. Apply numbers to sides, and compute area of each. Compare the ratio of the areas with the ratio of the squares of the homologous sides.

5. Draw a pentagon. Draw other similar pentagons inside the first. Divide into triangles. Can you show that all similar pentagons are to each other as the squares of their homologous sides?

6. Can you show that all similar polygons are to each other as the squares of their homologous sides?

7. Can you show that the perimeters of similar polygons are to each other as any two homologous sides?

8. Draw a triangle. Draw a similar triangle whose sides are to those of the first as 3 to 1. Compare the areas of the two triangles.

9. Draw a triangle. Draw a similar triangle whose sides are one-fourth those of the first triangle. Compare their areas.

10. Draw a triangle. Draw a similar triangle equal in area to 9 times the first triangle. Compare corresponding sides.