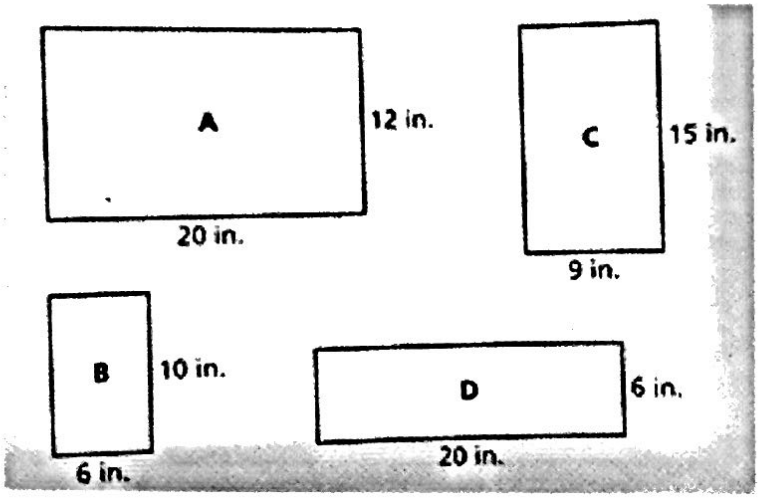
Stretching and Shrinking: Investigation 4 Big Ideas: Similar Figures

Problem 4.1 Ratios with in Similar Figures

When you make ratios of adjacent sides if the two ratios are equivalent the two figures are similar.
Since the ratios are equivalent they can be written as a proportion.



Ratio of length to width

A: $\frac{20}{12} = \frac{5}{3}$ B: $\frac{10}{6} = \frac{5}{3}$

C: $\frac{15}{9} = \frac{5}{3}$ D: $\frac{20}{6} = \frac{10}{3}$

Since A, B, & C Corresponding sides make equivalent ratios ☐ A B & C are similar and their ratios can be written as a proportion.

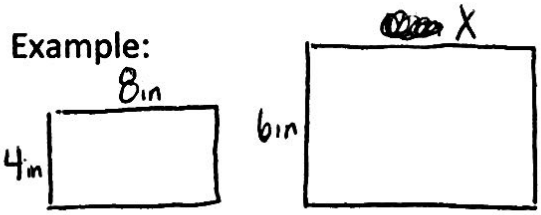
A B: $\frac{12}{20} = \frac{6}{10}$ A C: $\frac{12}{20} = \frac{9}{15}$

B C: $\frac{6}{10} = \frac{9}{15}$

Problem 4.3& 4.4 Finding Missing Parts.

This Lesson built on the previous lessons by writing a proportion to solve for missing sides. Students can use the relationship between the ratio of adjacent sides or they can use scale factor to find missing sides.

Example:



Using the ratios of adjacent sides

$\times 2 \left(\frac{4}{8} = \frac{6}{x}\right) \times 2$ $\frac{8}{4} = 2$ so $6 \times 2 = 12$

So $x = 12$

Using Scale Factor to solve for missing side length.

$\frac{4}{8} \xrightarrow{\times 1.5} \frac{6}{x}$ $\frac{6}{4} = 1.5$ So the Scale Factor is 1.5

$8 \cdot 1.5 = 12$

So the missing side length = 12 in