Unit 6

6.1 + 6.2 + 6.3 Similarity of Polygons

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Preamble

Objective

Understand basic terminology for similar polygons, and be able to identify similarities between polygons.

Definitions

- **Similar Figures**: two shapes that look the same
- **Congruent**: same shape and size
- **Corresponding Angles**: two angles that are roughly in the same place, and are the same size and shape.
- **Corresponding Sides**: two sides that are similar in similar figures.

Start

Intro

We worked with angles before, and if I draw 3 angles, and connect them all, we have a triangle. Now lets say I draw three more angles, and connect them all. What can we say about the relationship between the two shapes I've just drawn?

http://www.mathopenref.com/common/appletframe.html?applet=similarpolygons&wid=600&ht=300

[they all have the same angles][but can be different sizes]

> Q: What relationship do the sides of these similar triangles have in common?

[in proportion to each other]

Now proportional reasoning is something we've seen before, in fact we used it way back in unit 1 when dealing with ratios and rates. It is one thing compared to another, and the best way I know how to do that is through a fraction line, as that indicates a relationship.

Now this isn't something we've done with our angles before, but when we're working with anything, labelling is a great idea.

Lets label what we've created [A,B,C for points :: a,b,c for angles]

Now these nifty little notation is also used to identify angles and shapes. So that we can say triangle ABC is similar to A'B'C'. In math we can express this like this:

ABC ~ A'B'C'

As we discussed before, this means:

$$\frac{AB}{A'B'} = \frac{AC}{A'C'}$$

[Review definitions based on this knowledge]

Similar sides need to have the same proportionality to be similar.

We can use this information to examine if two polygons, are in fact, similar to each other.

Example 1

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Example 2

3 - pg. 230

Activity 1

pg. 231: 6.1

Example 3

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Roots of Math 1

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Activity 2

pg. 250: 6.5 + 6.6

Example 4

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Activity 3

pg. 255 - Puzzle it out

End

Assignment

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