

TI-NSPIRE

Similar Rectangles

Investigation: Perimeter and Areas of Similar Rectangles

1. Turn on the NSPIRE, press Home, then select new document, and geometry.
2. Press esc to get out of the $f(x)=line$, press menu, view, show grid.
3. Press menu, #8 Shapes, and select rectangle.
4. Draw a 3 unit by 4 unit rectangle. Label it original.
5. Draw three different rectangles, each similar to the original rectangle. Label them I, II, and III.
6. Press menu, measurement and length and measure each side of each rectangle and record in the chart below.

RECTANGLE	SIDE 1	SIDE 2
Original		
I		
II		
III		

Answers will vary in the chart.

Explain why I only need to record 2 sides of the 4 sided rectangles?

Definition of rectangle.

7. On your student activity guide use your drawings to complete the following chart,

RECTANGLE	PERIMETER	AREA
Original		
I		
II		
III		

Answers will vary in the chart.

8. Use the information from the first chart to complete chart 3.

RECTANGLE	SIMILARTY RATIO	RATIO OF PERIMETERS	RATIO OF AREAS
I to Original			
II to Original			
III to Original			

Answers will vary in the chart.

9. Answer the following questions. Always reduce the ratios.

- A. How do the ratios of perimeters and the ratios of areas compare to the similarity ratios, (explain how they are alike and how they are different)?

If two similar triangles have a scale factor of $a : b$, then the ratio of their perimeters is $a : b$.

If two similar triangles have a scale factor of $a : b$, then the ratio of their areas is $a^2 : b^2$.

- B. Two similar polygons have corresponding sides in the ratio of 5:7. Use your discovery in the lesson above to answer the following:

- What is the ratio of their perimeters? **5:7**
- What is the ratio of their areas? **25:49**

C. The Corresponding sides of two similar parallelograms are in the ratio of 3:4. If the area of the larger parallelogram is 96 in^2 , use your discovery in the lesson above to solve for the area of the smaller parallelogram. **54 in^2**

D. The areas of two similar rectangles are 1875 ft^2 and 135 ft^2 . Use your discovery in the lesson above to solve for the ratio of their perimeters. **$5:3$**