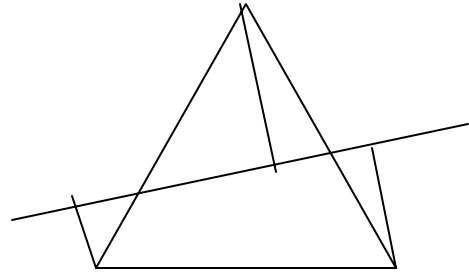


MATHEMATICAL JOURNAL

WEEK 3

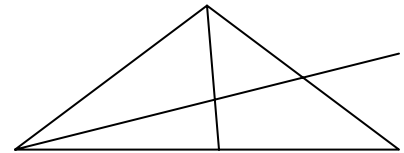
Investigation I: *Centroids and Perpendicular Lines*

- Draw a triangle and locate the centroid. Draw any line through the centroid so that it intersects two sides of the triangle. From each vertex draw perpendiculars to the line.
- Measure the perpendicular segments.
- Record the data for four different triangles.
- Make a conjecture about the relationship among the perpendicular segments.



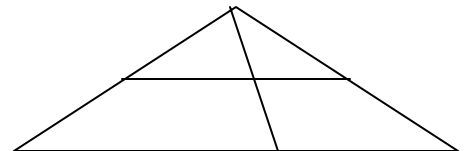
Investigation II: *Line Through the Midpoint of a Median*

- Draw a triangle, median, midpoint of the median and a line that contains a vertex and the midpoint of the median.
- What things can you investigate?
- What changes as you change the triangle by dragging?
- What did not change?
- Make a conjecture using the data you investigated.



Investigation III: *Median and Midsegment*

- Draw a triangle, a midsegment, and a median that intersects the midsegment. Make some measurements and drag a vertex to produce more triangles and different measurements.
- What things can you investigate?
- What changes as you change the triangle by dragging?
- What did not change?
- Make a conjecture using the data you investigated.



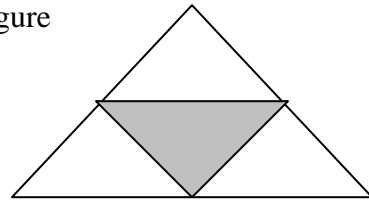
Investigation IV: Medial Triangle

- a. Draw a triangle. Draw the three midsegments. Find the area and perimeter of the triangle and the triangle formed by the midsegments. Repeat for several other triangles.

	Perimeter of Original Triangle	Perimeter of Medial Triangle	Area of Original Triangle	Area of Medial Triangle
Triangle 1				
Triangle 2				
Triangle 3				

- b. Make a conjecture about the perimeter of the original figure and the perimeter of the medial triangle.

- c. Make a conjecture about the area of the original figure and the area of the medial triangle.



Investigation V: Parallelogram, Medians, and a Diagonal

- a. Draw a parallelogram, a diagonal and two medians from the same vertex.

- b. Make appropriate measurements.

- c. Drag a vertex to create additional parallelograms. Record the data for four different parallelograms.

- d. Make a conjecture about the division of the diagonal.

