

Beyond Triangula Island

NAME _____

This activity can be completed using applets available on the Illuminations web site, <http://illuminations.nctm.org>. (Your teacher will tell you which applet to use.) Or, it can be done using paper and pencil.

Equilateral Triangle

1. Choose a point in the interior of a regular triangle, and measure the distance to each of the sides. Record these measurements in the first row for First Triangle below. Choose two more points within this triangle, and again record the measurements to each side.

Repeat this process for two other regular triangles of different sizes.

	d_1	d_2	d_3	$d_1 + d_2 + d_3$
FIRST TRIANGLE				
SECOND TRIANGLE				
THIRD TRIANGLE				

2. For a regular triangle, what conjecture can you make about the sum of the distances to each side of the triangle from an interior point? Is the sum related to any particular characteristic of the triangle?

3. Explain your reasoning.

Square

- Choose a point in the interior of a square, and measure the distance to each of the sides. Record these measurements in the first row for First Square below. Choose two more points within this square, and again record the measurements to each side.

Repeat this process for two other squares of different sizes.

	d_1	d_2	d_3	d_4	$d_1 + d_2 + d_3 + d_4$
FIRST SQUARE					
SECOND SQUARE					
THIRD SQUARE					

- For a square, what conjecture can you make about the sum of the distances to each side of the square from an interior point? Is the sum related to any particular characteristic of the square?
- Explain your reasoning.

Regular Hexagon

1. Choose a point in the interior of a regular hexagon, and measure the distance to each of the sides. Record these measurements in the first row for First Hexagon below. Choose two more points within this hexagon, and again record the measurements to each side.

Repeat this process for two other regular hexagons of different sizes.

	d_1	d_2	d_3	d_4	d_5	d_6	$d_1 + d_2 + d_3 + d_4 + d_5 + d_6$
FIRST HEXAGON							
SECOND HEXAGON							
THIRD HEXAGON							

2. For a regular hexagon, what conjecture can you make about the sum of the distances to each side of the hexagon from an interior point? Is the sum related to any particular characteristic of the hexagon?
3. Explain your reasoning.

Regular Octagon

- Choose a point in the interior of a regular octagon, and measure the distance to each of the sides. Record these measurements in the first row for First Octagon below. Choose two more points within this octagon, and again record the measurements to each side.

Repeat this process for two other regular octagons of different sizes.

	d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	$d_1 + d_2 + d_3 + d_4 + d_5 + d_6 + d_7 + d_8$
FIRST OCTAGON									
SECOND OCTAGON									
THIRD OCTAGON									

- For a regular octagon, what conjecture can you make about the sum of the distances to each side of the octagon from an interior point? Is the sum related to any particular characteristic of the octagon?
- Explain your reasoning.