



- F. The peak of the roof is located at which point on our diagram?
- G. Write the equation of lines AC and BC by using the slope intercept form.
- H. Are these lines perpendicular? How can you tell? Do you think that lines AC and BC will always be perpendicular no matter where on the y-axis point C is located?
- I. Are triangles ADE, AFG, AHI, AJK, and AOC congruent or similar or neither? If they are congruent or similar, how would you prove this (sss,sas,asa,aaa)?
- J. Find the areas of the following triangles: ADE, AFG, AHI, AJK, and AOC.
- K. Set up a sequence containing the ratios of the area of each triangle to the area of the next triangle.

L. Look for any patterns you can find in this sequence. Write a formula to represent the  $n$ th term of this sequence.

M. Find the lengths of the following legs of these triangles: AD, AF, AH, AJ, and AO.

N. Set up a sequence containing the following ratios: AD/AF, AF/AH, AH/AJ, and AJ/AO.

O. Look for any patterns you can find in this sequence. Write a formula to represent the  $n$ th term of this sequence.

P. Find the lengths of the following legs of these triangles: DE, FG, HI, JK, and OC.

Q. Set up a sequence containing the following ratios: DE/FG, FG/HI, HI/JK, JK/OC.

- R. Look for any patterns you can find in this sequence. Write a formula to represent the  $n$ th term of this sequence.
- S. Explain how the formulas from parts L, O, and R are related.
- T. List the  $x$  coordinates of the points A, E, G, I, K, and C. These coordinates form an arithmetic sequence of numbers. What is the common difference?
- U. List the  $y$  coordinates of the points A, E, G, I, K, and C. These coordinates form an arithmetic sequence of numbers. What is the common difference?
- V. Find the ratio of the common difference of the  $y$  coordinates to the common difference of the  $x$  coordinates.