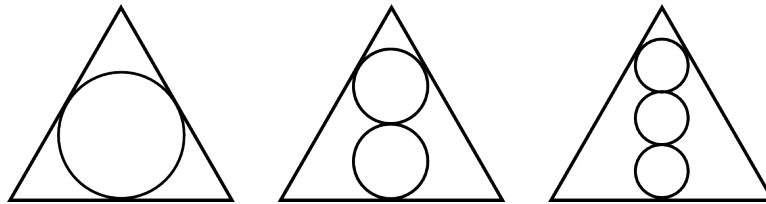# Math Challenge Problem

for mid January, 2012

**Stacking Circles**



Suppose you have an equilateral triangle with side length 1. Inside the triangle you have identical circles stacked one atop another, so that the bottom circle is tangent to the base of the triangle and the top triangle is tangent to both sides of the triangle. Each circle is also tangent to the circles above and/or below it.

**The Challenge:** Find the area of the circles in each of the three triangles above.

**Bonus Challenge:** Suppose you add up the areas of all the circles using all possible numbers of circles as described above. What can you say about the total area?

Look for a new Challenge Problem the last week of January.