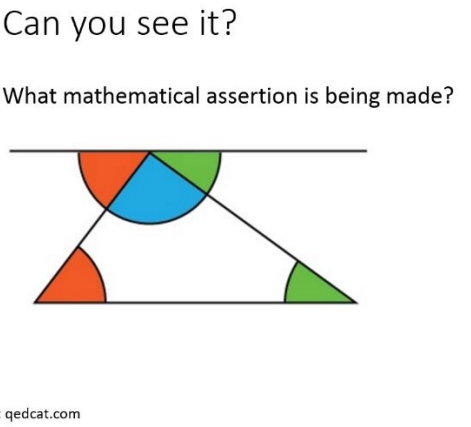
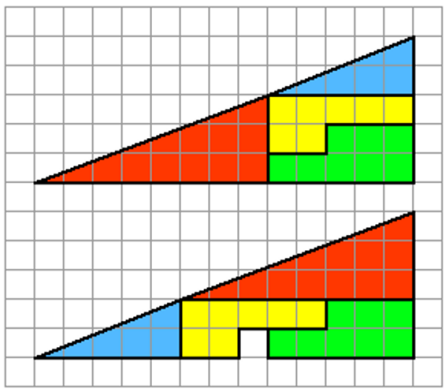
**Activity 1**:




Source: qedcat.com

You can see that the angle measures Red + Blue + Green = 180 degrees. If you then look at the triangle, we see the same statement. In other words, the sum of the angles in a triangle is 180 degrees.

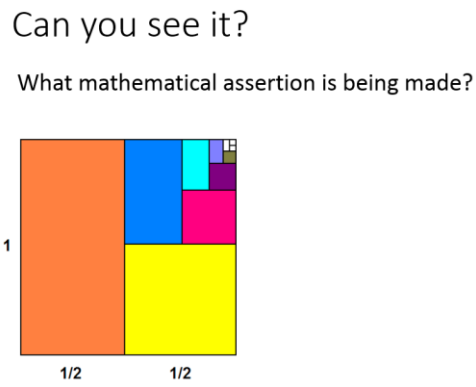
**Activity 2**:



Two Congruent Triangles of Unequal Areas???

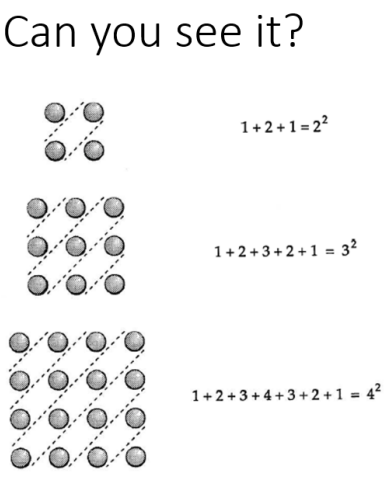
The top figure *appears* to be a triangle; that is the problem! (The red triangle runs 8 units across and 3 units high; the blue triangle runs 5 units across and 2 units high. If $\frac{8}{3}=\frac{5}{2}$ (they are close but not equal!) then the above figure would be a triangle.)

**Activity 3**:




The area of the entire square (all colors) is 1 (since the sides are 1 and 1 in length). Now find the area by calculating the areas of the individual pieces (orange, yellow, blue, etc.). This says that $1=\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\cdots$ .

**Activity 4**:




Source: Proofs Without Words

For example, look at the middle diagram. If you count in groups designated by the dotted lines, you see 1 + 2 + 3 + 2 + 1. If you look at this a different way (as a 3 by 3 array), then you have $3^2$ balls. These have to be equal since we just counted the same collection in two different ways.