

Solution  
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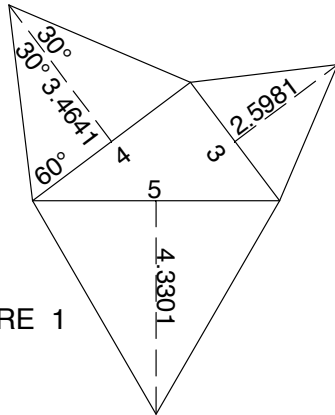


FIGURE 1

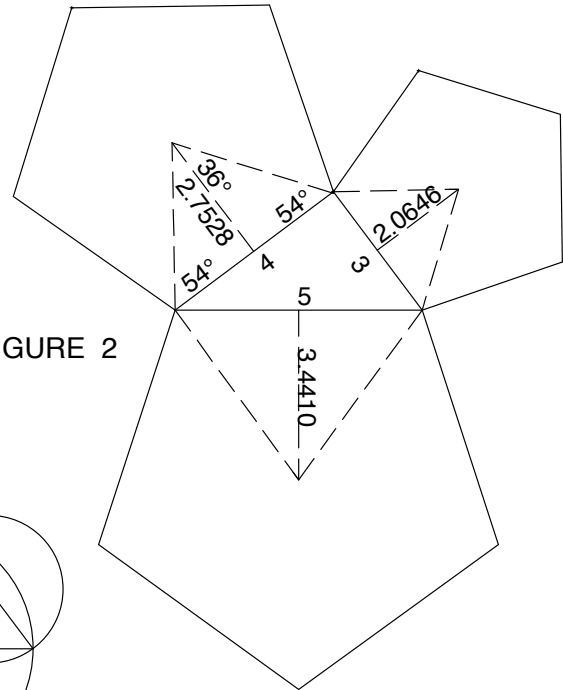


FIGURE 2

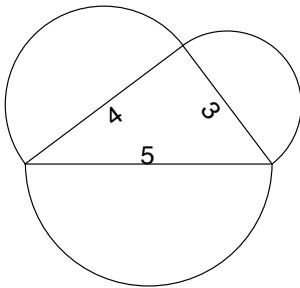


FIGURE 3

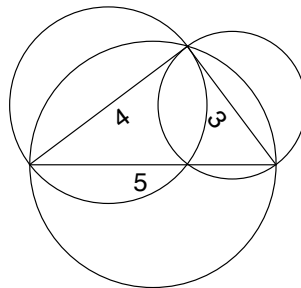


FIGURE 4

In Figure 1, the altitudes of the equilateral triangles on the 4, 3 and 5 sides are 3.464102, 2.598076 and 4.330127 respectively. The area on the "4" side is  $\frac{1}{2}(4)(3.464102) = 6.928204$ , on the "3" side is  $\frac{1}{2}(3)(2.598076) = 3.897114$  and on the "5" side is  $\frac{1}{2}(5)(4.330127) = 10.825318$ , which is  $6.928204 + 3.897114 = 10.825318$ .

In Figure 2, the perpendicular distance from the center of the pentagon to the triangle is 2.752764, 2.064573 and 3.440955 respectively to the 4, 3 and 5 side. Each pentagon is made up of five similar triangles. On the "4" side, the area of the pentagon is  $5(\frac{1}{2})(4)(2.752764) = 27.52764$ , on the "3" side the area of the pentagon is  $5(\frac{1}{2})(3)(2.064573) = 15.48430$  and on the "5" side the area of the pentagon is  $(5)(\frac{1}{2})(5)(3.440955) = 43.01194$  which is the same as  $27.52764 + 15.48430 = 43.01194$ .

In Figure 3, the areas of the sides' semi-circles are  $(\frac{1}{2})\pi(2)^2 = 6.283185$  and  $(\frac{1}{2})\pi(1.5)^2 = 3.534292$  and that of the semicircle on the hypotenuse is  $(\frac{1}{2})\pi(2.5)^2 = 9.817477$  which is equal to  $6.283185 + 3.534292 = 9.817477$ .