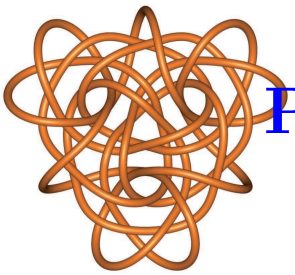
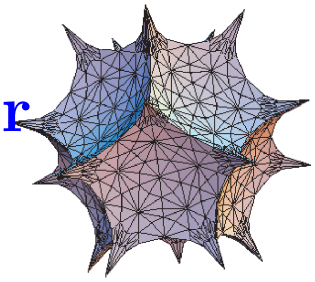
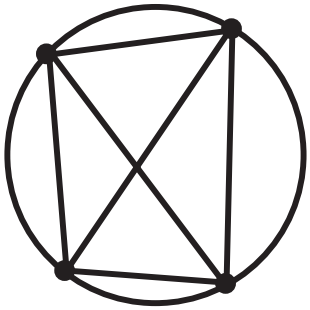


Willamette Math Problem of the Summer



Striking a Chord

Take n points on a circle, and draw all possible chords between them. Into how many regions is the circle divided?



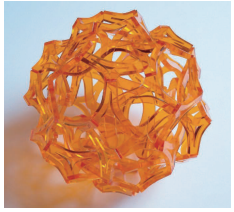
Submit all solutions before the appearance of the next problem to Josh Laison in person, by e-mail (jlaison@willamette.edu), or by postcard. The first correct solution gets a prize; all correct solutions get fame and glory. Preference for the prize goes to problem-solvers who haven't won one yet.

Solution to *Stringing Along*: Congratulations to Alex Grey, who solved the problem and won a yo-yo.

Light two ends of one string and one end of the other. The first string will burn completely after 30 seconds. At that point, light the other end of the second string. It will burn completely in 15 more seconds, for 45 seconds total.

Solution to *Many Feet Many Shoes*: Congratulations to Jessica Ahmann and Wesley Smith, who solved the problem at the same time and won a can of silly string and a sheep noisemaker, respectively.

Label the centipede's feet 1 through 100. Then the number of ways a centipede can put on its shoes and socks corresponds to the number of distinct sequences of the numbers 1 through 100, listed twice each. The first time a number appears, the centipede puts on the corresponding sock, and the second time it puts on the corresponding shoe. There are $\frac{200!}{2^{100}}$ such sequences, which is approximately 6.2×10^{344}.



Past problems of the week, solutions, and solvers can be found at http://www.willamette.edu/~jlaison/problem.html