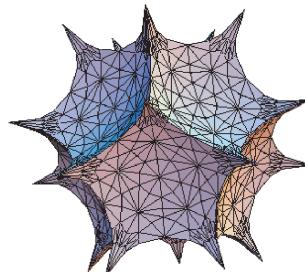
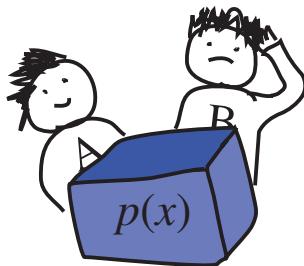


Willamette Math Problem of the Week



October 29 2007

What's My Polynomial?

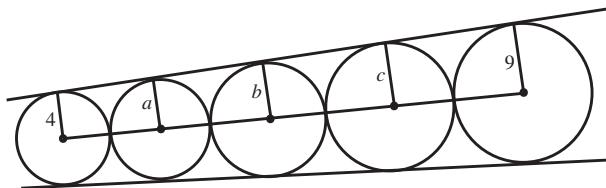


Adele and Benicio are playing the following game. Adele has a polynomial $p(x)$ with positive integer coefficients. Benicio gives Adele an integer a , and Adele tells him $p(a)$. Then Benicio gives Adele another integer b , and Adele tells him $p(b)$. Then Benicio must guess $p(x)$. Describe a winning strategy for Benicio.

Submit all solutions before the appearance of the next problem to Josh Laison in person, by e-mail (jlaison@willamette.edu), or by owl post. 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 *Circular Reasoning*:

Congratulations to **Jared Nishikawa**, who solved the problem and won set of jacks, and to **Kyle Evans**, who also submitted a correct solution.



The trapezoids shown are similar, so the numbers 4, a , b , c , and 9 are in geometric progression. Call the ratio of successive terms r . Then $4r^4 = 9$, so $r = \sqrt[3]{\frac{3}{2}}$ and $b = 4r^2 = 6$.



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

