

Cal Poly Department of Mathematics

Puzzle of the Week

January 15 - 21, 2010

Estelle Basor discovered this remarkable sum in the course of her research involving Brownian Motion. However you won't need an advanced degree to solve it as Kent Morrison has told me he has found two elementary approaches:

Let l be a non-zero integer. Find, with justification, the value of

$$\sum_{n=1}^{\infty} \left(\frac{\sin^2 \frac{\pi l}{2^n}}{\frac{\pi l}{2^n}} \right)^2$$

Solutions should be submitted to Morgan Sherman:

*Dept. of Mathematics, Cal Poly
Email: sherman1 -AT- calpoly.edu
Office: bldg 25 room 310*

before next Friday. Those with correct and complete solutions will have their names listed in next week's email announcement. Anybody is welcome to make a submission.