

Fun,

University of Virginia

Undergraduate Mathematics Lecture Series

Ingenious, & Unusual Math



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University of Missouri

Start with a pile containing n pebbles.

Divide them into two piles and record the product of the number of pebbles in the two new piles.

Repeat this process to one of the new piles, and so on, until all piles contain one pebble each.

Surprisingly, the sum of all products recorded is always $n(n-1)/2$.

To see this, we will imagine that each pebble is initially connected to each other pebble by a thread.

To partition a pile into two smaller piles, you need to cut precisely the threads connecting pebbles that go to different piles. The number of threads you cut at each step is equal to the product you record.

Hence, the sum of all products recorded is equal to the total number of threads, which in turn is equal to combinations of n taken 2 at a time.

Join us for a fun-packed hour of recreational mathematics.

March 20, 2009

4:00-5:00pm

107 Clark Hall



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Organizer: Irina Mitrea, Department of Mathematics