

AN ODD/EVEN FACTORIAL SUM

SCOTT DUKE KOMINERS

Problem. Define $n!!$ to be $n(n-2)(n-4)\cdots 3\cdot 1$ for n odd and $n(n-2)(n-4)\cdots 4\cdot 2$ for n even. When

$$\sum_{i=1}^{2009} \frac{(2i-1)!!}{(2i)!!}$$

is expressed as a fraction in lowest terms, its denominator is $2^a b$ with b odd. Find $\frac{ab}{10}$.

STUDENT, HARVARD UNIVERSITY, CAMBRIDGE, MA, 02138
C/O 8520 BURNING TREE ROAD, BETHESDA, MD, 20817
E-mail address: kominers@fas.harvard.edu