${\bf Problem: Alternating\ Harmonic\ Product}$

Write a program that computes the product,

$$(1-\frac{1}{2})(1-\frac{1}{2}+\frac{1}{3})(1-\frac{1}{2}+\frac{1}{3}-\frac{1}{4})\cdots(1-\frac{1}{2}+\frac{1}{3}-\cdots\frac{1}{n})$$

for any positive integer, n.

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