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# Problem of the Week

## Number Three

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Pity the poor, ignored cotangent function. Usually listed sixth among trig functions. Complicated derivative. Even the unpronounceable cosecant ( $\csc$ !?) gets higher billing. No more! This week the cotangent is front and center. You might find it helpful to note that

$$\cot(A + B) = \frac{\cot A \cot B - 1}{\cot A + \cot B}.$$

On to the problem! The angle measures are in degrees.

**Evaluate:**

$$(1 - \cot 23)(1 - \cot 22).$$

Of course, it goes without saying that answers based on plugging things into a calculator are not acceptable. Your answer must be accompanied by a proper mathematical proof.

**FOLLOW THESE INSTRUCTIONS TO THE LETTER:**

Please place your name and e-mail address at the top of this page. If you are receiving class credit for participating, please indicate the course number and your professor. Your answer to the problem, coupled with a clear explanation of how you arrived at it, should appear on the back of this page. Be sure to write neatly! If I can't easily read your paper, then I will discard it.

Due **Friday, February 20** by 5:00 to Jason Rosenhouse in Roop 121. One weekly winner will receive a five dollar gift card to Greenberry's, and will be chosen randomly from among the correct answers.