Problem of the Week
Number Four
February 16, 2015

In a career that began in the late 1920s and lasted to the early 1970s, John Dickson Carr turned out a few dozen of the best mystery novels ever written. He was especially famous for writing "locked-room" stories, in which a murder is committed in a fashion that initially seems to be impossible. (The classic example is a murder committed in a room that is locked from the inside, making you wonder how the criminal got out after performing the foul deed.) I am mostly a great admirer of Carr's work, but he did have one hang-up that always bothered me. He *hated* mathematics.

This antipathy frequently got worked into his stories. It was not uncommon for his characters to make snide remarks about the subject. For example, in his novel *Dark of the Moon*, one of his characters remarks:

> To me mathematics means the activities of those mischievous lunatics A, B, and C. In my time they were always starting two trains at high speed from distant points to see where the trains would collide somewhere between. . . . And when the silly dopes weren't wrecking trans or computing the ages of their children without seeming to know how old the brats were, two of 'em had a passion for pumping water out of a tank while the third mug pumped water into it.

For some reason, this week's problem reminded me of that:

A piece of wire 40 inches long is cut into two pieces.
One piece is formed into a square, while the other piece
is formed into a circle that circumscribes the square.
Determine the length of the shorter piece.

Why would anyone want to cut a wire in this fashion? Mathematicians don't ask such questions!

Submissions are due to Jason Rosenhouse by 5:00 on Friday, February 20. ***Solutions should be written on the back of an official POTW handout.*** *Place your name, e-mail address, and the section numbers and professors of any math courses you are taking, in the* ***upper right corner*** *of the front of the page. One weekly winner will receive a five-dollar gift card from Starbucks.* ***To be considered correct, your answer to the problem must be accompanied by a clear, concise explanation.*** *Solutions will be posted at this website, by the Monday after the problem is due:*

http://educ.jmu.edu/∼rosenhjd/POTW/Spring15/homepage.html