

Problem of the Block - Block 5



Marathon

Alice and Bob run a marathon (assumed to be exactly 26.2 miles long). Alice runs a perfectly uniform eight-minute-per-mile pace. Bob does not run at a uniform pace, but takes *exactly* eight minutes and 1 second to complete any mile interval. This refers to *all* intervals of the form $(x, x + 1)$, including, for example, intervals like 3.78 to 4.78 miles, and 1.07 to 2.07 miles.

Is it possible that Bob finished ahead of Alice? If so, explain how. If not, explain why not.

Turn in solutions to Dr. Bean in Law 206E or by email at sbean@cornellcollege.edu by Wednesday, February 7. Solutions for only one/some questions or partial solutions will receive credit (and are encouraged!). Submitting solutions for the Problem of the Block can earn culture points toward the major in mathematics. For more information about the Problem of the Block, including the current leader board for the yearly competition, and to print off your own copy visit <http://www.cornellcollege.edu/mathematic-of-the-block/index.shtml>.