

Problem 1 (due on Monday, September 12)

Every day at noon a ship leaves Boston for London and another one leaves London for Boston. The travel takes exactly 7 days (168 hours) each way. John plans to travel to London next Sunday. How many ships coming from London will John see during his trip?

This was a warm-up puzzle. It is rather simple but has some nice history. The puzzle is attributed to a renowned French mathematician Edward Lucas. During a breakfast served for a scientific meeting with many world known mathematicians in attendance, Lucas announced this puzzle as one of the harder questions. According to Lucas' account, a few participants answered "7" without much thought, most remained silent, and nobody gave a correct answer. Of course, one should take anecdotes like this with a grain of salt.

The answer to the puzzle is 15. The first ship John will see is the one which left London seven days before John starts his trip and enters Boston the moment John departs from it. The last ship John will see is the one which departs London the moment John arrives to it. John will see every ship "in-between" so it is easy to see that the number of ships John will see is 15. A graphical solution to this problem is here.

Some solvers were not sure if the two ships from London at the beginning and at the end of John's trip should be counted (which would make 13 the answer). One solver assumed that noon in London is 5 hours earlier than noon in Boston (which is correct, but it was not the intention of the problem to use the time difference). Under this assumption the answer is 14.

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