Proposed by Bernardo Ábrego and Silvia Fernández.                    **April 4-11**

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A digital LCD watch displays hours, minutes, and seconds in AM/PM mode. Each LCD number displayed has a certain number of *segments* turned on. For example, the number 9 has six segments, the number 1 has two segments, and at 9:02' 15'' (see figure) there are 24 segments turned on.

How many times during the day are there exactly 33 segments turned on?

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**Additional questions for possible projects**.

Answer the same question but now with a different number of segments. Start by finding the maximum and minimum possible number of segments that can be turned on. Suppose you know how much energy it takes to turn on a single segment for one second. It would be nice to find the total amount of energy spent during one day. This is equivalent to finding the expected number of segments turned on during a day.