Bowling is a very popular sport in the U.S.. But projecting frames needed for winning a game is a bit painful for non-ACMers, so you are tasked with writing a program to compute this for them.

For anyone who has not bowled or has forgotten how the score is computed, there is a description of how to total a bowling score on the next couple pages, following the sample input and output. The main idea is that in order to win, you must get a higher score than your competitor. Given your opponents final score and the number of pins you knocked down on each ball through the eighth frame, you are to compute what you need to win (if it is even possible). If you can't possibly win, print "impossible", otherwise print the sequence of rolls that will allow you to win that is first in lexicographical order. That is, the one with the lowest first roll, lowest second roll given the first roll, lowest third roll given the first two rolls, and so on.

Input: For each input case, print the rolls needed to win the game. Follow this format exactly: "Case", one space, the case number, a colon and one space, and the answer for that case given as either "impossible" or the list of rolls needed to win the game. Your opponents score will be an integer from 0 to 300, and the numbers of pins knocked down, with each roll of the ball for your first eight frames.

Output: For each input case, print the rolls needed to win the game. Follow this format exactly: "Case", one space, the case number, a colon and one space, and the answer for that case given as either "impossible" or the list of rolls needed to win the game. Your opponents score will be an integer from 0 to 300, and the numbers of pins knocked down, with each roll of the ball for your first eight frames.

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