

Problem Set VII

1. How can you cut a pumpkin pie with three straight cuts of a knife into 4, 5, 6 and 7 parts? Every cut should start and end at the crust of the pie, but does not need to pass through the center. Draw your solutions below.

2. Johnny the Junior Hacker reprogrammed the elevator in the 100-story Boogle Corporation building: only two buttons are currently working. The first button sends the elevator 8 floors up, the second one sends the elevator 6 floors down. The elevator will not start moving if it is required to go above the 100th floor or below the 1st floor.

a) The company CEO is currently drinking coffee on the 1st floor. Can she take the elevator to the 95th floor? If yes, show how. If no, explain why.

(b) Can she take the elevator to the 96th floor? If yes, show how. If no, explain why.