

Problem 9 Consider the following infinite number triangle:

$$\begin{array}{cccccccc} & & & & 1 & & & & \\ & & & & 1 & 1 & 1 & & \\ & & & 1 & 2 & 3 & 2 & 1 & \\ & & 1 & 3 & 6 & 7 & 6 & 3 & 1 \\ & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \end{array}$$

Each number is the sum of three numbers of the previous row: the number immediately above it, the number immediately to the right and the number immediately to the left. If no number appear in one or more of these positions, the number zero is used. Prove that every row, beginning with the third row, contains at least one even number.