

Problem 8. *Will:*

We solve the following system of equations, which exactly determine the harmonic extension:

$$\begin{cases} 4a &= b + c \\ 4c &= a + d + 1 \\ 4d &= b + c + 3 \\ 4b &= a + d + 2 \end{cases}.$$

We see that the solution is given by $(a, b, c, d) = (\frac{3}{8}, \frac{7}{8}, \frac{5}{8}, \frac{9}{8})$