ZAD 1.

$$\lfloor an \rfloor + \lfloor (1-a)n \rfloor = n - 1$$

Niech $\mathbb{Z} \ni m = \lfloor an \rfloor$, wtedy

$$\begin{aligned} m \leq an &< m + 1 \\ m - n \leq an - n &< m - n + 1 \\ n - m \geq n - an &> n - m - 1 \end{aligned}$$

Poniewaz $n \notin \mathbb{Q}$, to $n - an \notin \mathbb{Z}$, wiec

$$\lfloor n - an \rfloor = n - \lfloor an \rfloor - 1$$

a z tego

$$\lfloor an \rfloor + \lfloor n(1-a) \rfloor = n - 1$$

$$\lceil an \rceil + \lceil n - an \rceil = n + 1$$