geg: $n = 4$ ges: $x_0 > n$, s.d. $p(x_0,n) \geq p(x,n)$ $\forall x > n$

Da $(x_0 \leq 2n+1) \wedge (x_0 > n)$

$$\Rightarrow \quad n < x_0 \leq 2n+1$$

$$\overset{n=4}{\Leftrightarrow} \quad 5 \leq x_0 \leq 9$$

Als Hilfen:

$$p(1,4) = \frac{1}{4} + \frac{1}{4} \cdot 0 = \frac{1}{4}$$

$$p(2,4) = \frac{1}{4} + \frac{1}{4} \cdot \sum_{i=1}^{1} p(i,4)$$
$$= \frac{1}{4} \cdot (1 + p(1,4)) = \frac{1}{4} \cdot (1 + \frac{1}{4}) = \frac{5}{16}$$

$$p(3,4) = \frac{1}{4} + \frac{1}{4} \cdot \sum_{i=1}^{2} p(i,4)$$
$$= \frac{1}{4} + \frac{1}{4} [p(1,4) + p(2,4)]$$
$$= \frac{1}{4} + \frac{1}{4}(\frac{1}{4} + \frac{5}{16}) = \frac{1}{4} + \frac{9}{64} = \frac{25}{65}$$

$$p(4,4) = \frac{1}{4} + \frac{1}{4} [p(1,4) + p(2,4) + p(3,4)]$$
$$= \frac{1}{4} + \frac{1}{4} [\frac{1}{4} + \frac{5}{16} + \frac{25}{64}] = \frac{1}{4} + \frac{1}{4}(\frac{61}{64})$$
$$= \frac{64}{256} + \frac{61}{256} = \frac{125}{256}$$

$$p(5,4) = \frac{1}{4} \cdot \sum_{i=1}^{4} p(i,4)$$
$$= \frac{1}{4} \cdot [p(1,4) + p(2,4) + p(3,4) + p(4,4)]$$
$$= \frac{1}{4} \cdot (\frac{369}{256}) \approx 0{,}36035$$

$$p(6,4) = \frac{1}{4} \sum_{i=2}^{5} p(i,4)$$
$$= \frac{1}{4} [p(2,4) + p(3,4) + p(4,4) + p(5,4)]$$
$$= \frac{1}{4} [\frac{5}{16} + \frac{25}{65} + \frac{125}{256} + 0{,}36035]$$
$$\approx 0{,}38795$$

$$p(7,4) = \frac{1}{4} \sum_{i=3}^{6} p(i,4)$$
$$= \frac{1}{4} [p(3,4) + p(4,4) + p(5,4) + p(6,4)]$$
$$\approx 0{,}40680$$

$$p(8,4) = \frac{1}{4} \cdot \sum_{i=4}^{7} p(i,4)$$
$$= \frac{1}{4} \cdot [p(4,4) + p(5,4) + p(6,4) + p(7,4)]$$
$$\approx 0{,}41084$$

$$p(9,4) = \frac{1}{4} \sum_{i=5}^{8} p(i,4)$$
$$= \frac{1}{4} \cdot [p(5,4) + p(6,4) + p(7,4) + p(8,4)]$$
$$\approx 0{,}39148$$

$$\max(p(5,4), p(6,4), p(7,4), p(8,4), p(9,4))$$
$$\Leftrightarrow p(8,4) \approx 0{,}41081$$

Also ist $x_0 = 8$.