Bouncing ball, induction proof

• We have the formula that

$$h_{n+1}=0.8\cdot h_n.$$

• We want to show that

$$\forall n \in \mathbb{N}, h_n = (0.8)^n \cdot h_0.$$

- We check for n = 1: $h_1 = (0.8) \cdot h_0$ by definition.
- Now assume that

$$h_k = (0.8)^k \cdot h_0$$

Then we compute

$$h_{k+1} = (0.8) \cdot h_k = (0.8) \cdot (0.8)^k \cdot h_0 = (0.8)^{k+1} \cdot h_0$$

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