Homework Assignment #15
Due: November 23, 9:30 a.m.

1. Consider the recurrence

$$\begin{aligned} a(0) &= 3 \\ a(n) &= \tfrac{2}{3}(a(\tfrac{n-1}{2}))^2, \text{ for odd } n \geq 1 \\ a(n) &= \tfrac{1}{3}(a(\tfrac{n}{2}))^2, \text{ for even } n \geq 1 \end{aligned}$$

(a) What are the first 7 terms of the sequence defined by this recurrence?

(b) Guess a solution for the recurrence. (Explain your reasoning, briefly.)

(c) Prove that your guess is correct.