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CS 225: Discrete Structures in CS

Homework 6

Set 5.6

#4.

$d_0 = 3$

$d_1 = 1 * (3)^2 = 9$

$d_2 = 2 * (9)^2 = 162$

$d_3 = 3 * (162)^2 = 78{,}732$

#6.

$t_0 = -1$

$t_1 = 2$

$t_2 = 2 + 2(-1) = 0$

$t_3 = 0 + 2(2) = 4$

Set 5.7

#7.

$e_k = \frac{11*4^k - 5}{3}$ for all k >= 1

#8.

$f_k = 2^{k+1} - 3$ for all k >= 2

Set 5.9

#15.

Base: t ∈ T

Recursion: if t is in T, then 0t1 and 1t0 are also in T

Restriction: No other strings other than the ones derived by rules one and two exist in T

#18.

Base: $x \in X$

Recursion: If x is in X, then xb and bx are also in X

Restriction: No other strings other than the ones derived by rules one and two exist in X