

Exercise 2.4.2

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The recurrence relation for binary multiplication using Gauss's trick is

$$x_L y_R + x_R y_L = (x_L + x_R)(y_L + y_R) - x_L y_L - x_R y_R$$

Parameters:

a = 3 (three multiplication operations)

b = 2 (still divided each string N in half)

d = 1 (constant addition)

Case = 3 ($d < \log_2 3$)

Solution = $O(n^{\log_2 3}) = O(n^{1.58})$