Algorithmics	Student information	Date	Number of session
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Activity 1. Tromino Times

N	*T Tromino*
16	1
…	(0 or 1 until next n)
1024	16
2048	30
4096	140
8192	447
Heap Overflow (n = 16384)	1627

- What should be the time complexity of the algorithm?

  The complexity of the algorithm is calculated the following way:

  a = 4

  b = 2 (by division)

  k = 0

  So, the complexity is: O(n^(logb(a)) which is O(n^(log2(4)) = O(n^2)

  The time complexity of the Tromino algorithm is O(n^2)

- Check if the time obtained in the previous section does or does not meet the theoretical complexity of the algorithm.

  For a complexity O(n^2) we would have the theoretical values:

  (Note K is n2^2/n1^2, and since n1 = 2*n2 in our case, K = n2^2/2n2^2 -> ¼ = 0,25)

  N = 1024 T = 1024^2/2048^2 * 30 = 7,5

  N = 2048 T = 2048^2/4096^2 * 140 = 35

  N = 4096 T = 4096^2/8192^2 * 447 = 111.75

  N = 8192 T = 8192^2/16384^2*1627 = 406,75

  And thus the ties meet approximately the complexity of the algorithm.