

Heimadæmi 2 - Tölv 2

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c)

$$\frac{(N+1)(N+2)}{N^2} \Rightarrow \frac{N+3N+2}{N} \Rightarrow \frac{N}{N} \Rightarrow 1$$

d)

$$2N$$

e)

$$\frac{\lg(2N)}{\lg(N)} \Rightarrow \frac{\lg(N)+\lg(2)}{\lg(N)} \Rightarrow \frac{\lg(N)}{\lg(N)} \Rightarrow 1$$

f)

Ekki hugmynd spyrja í dæmatíma

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a)

Línuleg þróun:

$$f(N) = (N + \frac{N}{2} + \frac{N}{4} + \frac{N}{8} + \dots)$$

b)

$$f(N) = (1 + 2 + 4 + 8 + \dots + \frac{N}{2})$$

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N	sums	time	ratio	lg ratio
100	0	0.007s	-	-
200	0	0.011s	1.54	0.65
400	0	0.054s	4.9	2.3
800	84	0.582s	10.77	3.43
1600	455	4.65s	8	3
3200	3276	37.15s	8	3