TC1031 - Data structures and fundamental algorithms
Tecnologico de Monterrey, campus Santa Fe
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Exercise 1

Which of the following functions are $O(n^2)$? No explanation is required, but you might want to prove your answer to yourself to convince yourself that you are correct.

a) $f_1(n) = \frac{1}{20}n^3 + 4n^2$

b) $f_2(n) = 2n^2 + 13n$ → $O(n^2)$

c) $f_3(n) = 7n + 30\log n$

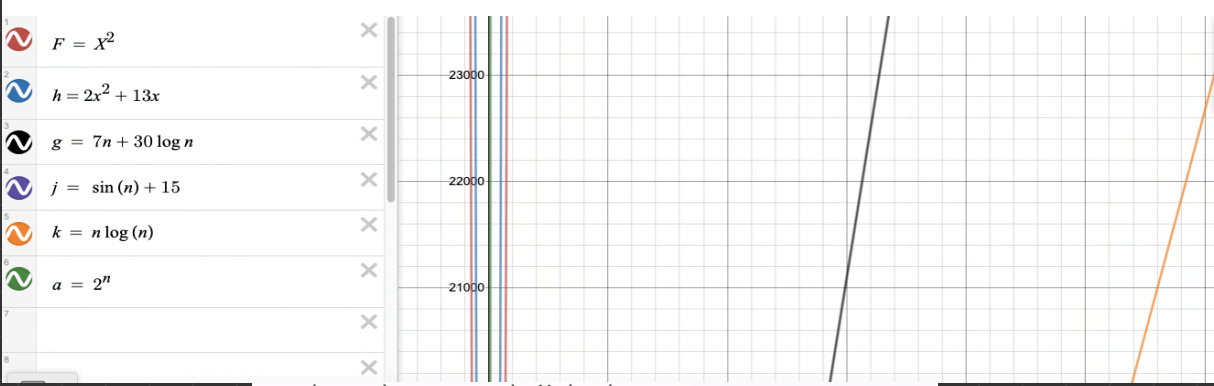
d) $f_4(n) = \sin(n) + 15$

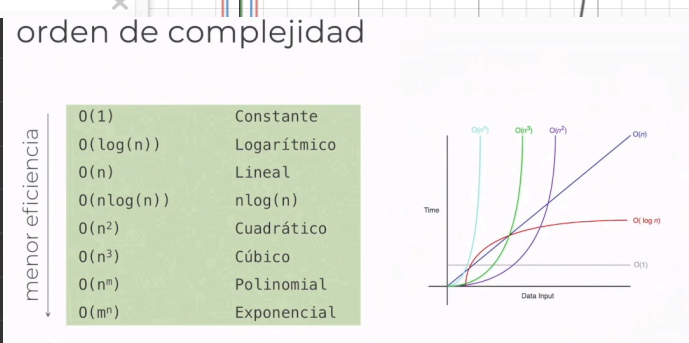
e) $f_5(n) = n\log(n)$

f) $f_6(n) = 2^{2^{10}}$

g) $f_7(n) = 2^n$

Como Big-O nadamas toma en cuenta la maxima complicación temporal sin constantes b) == O(n^2)



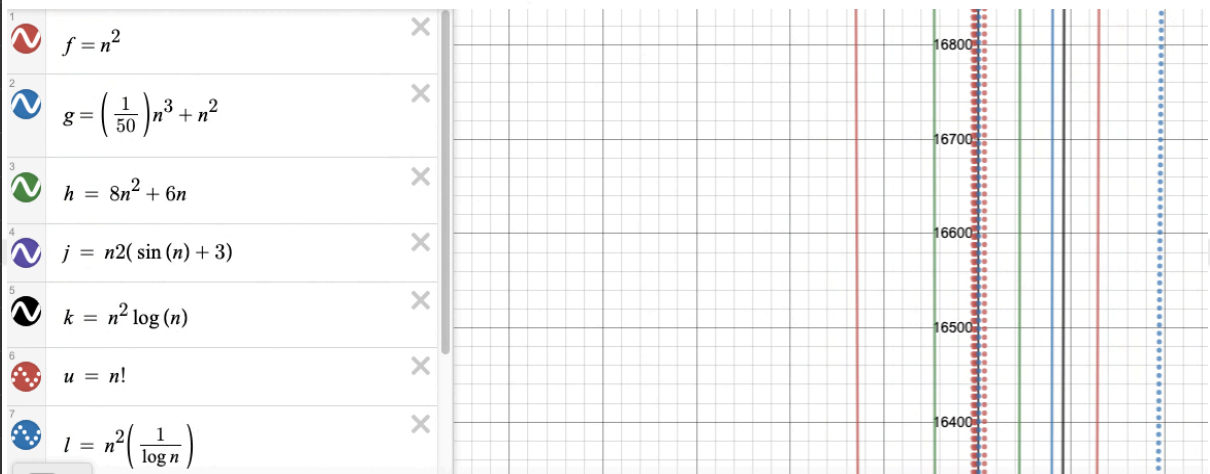


Exercise 2

Which of the following functions are $\Omega(n^2)$? No explanation is required, but you might want to prove your answer to yourself to convince yourself that you are correct.

a) $f_1(n) = \frac{1}{50}n^3 + n^2$

1



b) $f_2(n) = 8n^2 + 6n$

c) $f_3(n) = 7n + 2\log n$

d) $f_4(n) = n^2(\sin(n) + 3)$

e) $f_5(n) = n^2 \log(n)$