INSTITUTO POLITÉCNICO NACIONAL

ESCUELA SUPERIOR DE CÓMPUTO

Ejercicio 03: Graficación de ordenes de complejidad

Unidad de aprendizaje: Análisis de Algoritmos

Grupo: 3CM3

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Profesor(a):
Franco Martínez Edgardo Adrián

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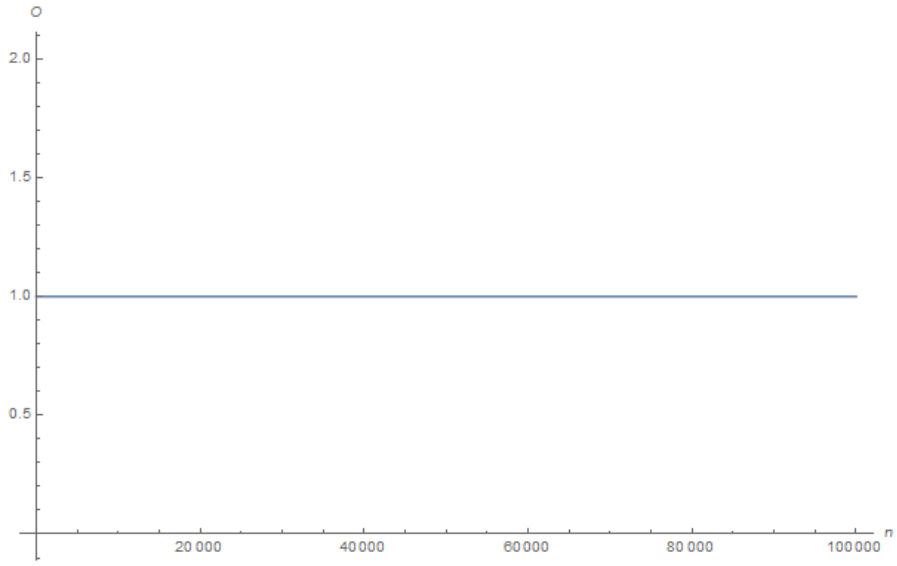
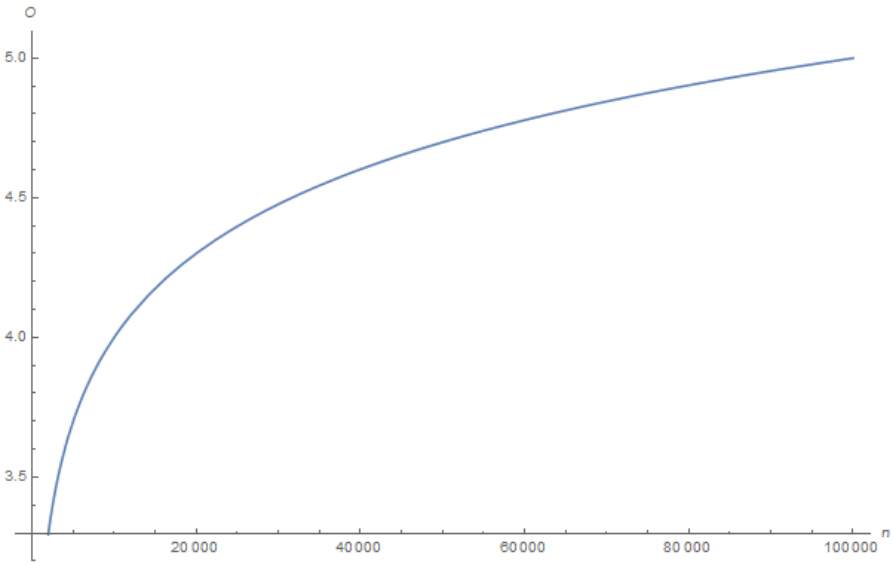
1. Dados los ordenes de complejidad graficar cada uno de estos de manera separada para un rango de $0 < n < 100{,}000$.

NOTA: Algunos rangos de las gráficas obtenidas fueron ajustados a uno menor al especificado para una mejor visualización y apreciación de las funciones de orden de complejidad, ya que en numero muy grandes no se logra visualizar correctamente su comportamiento.

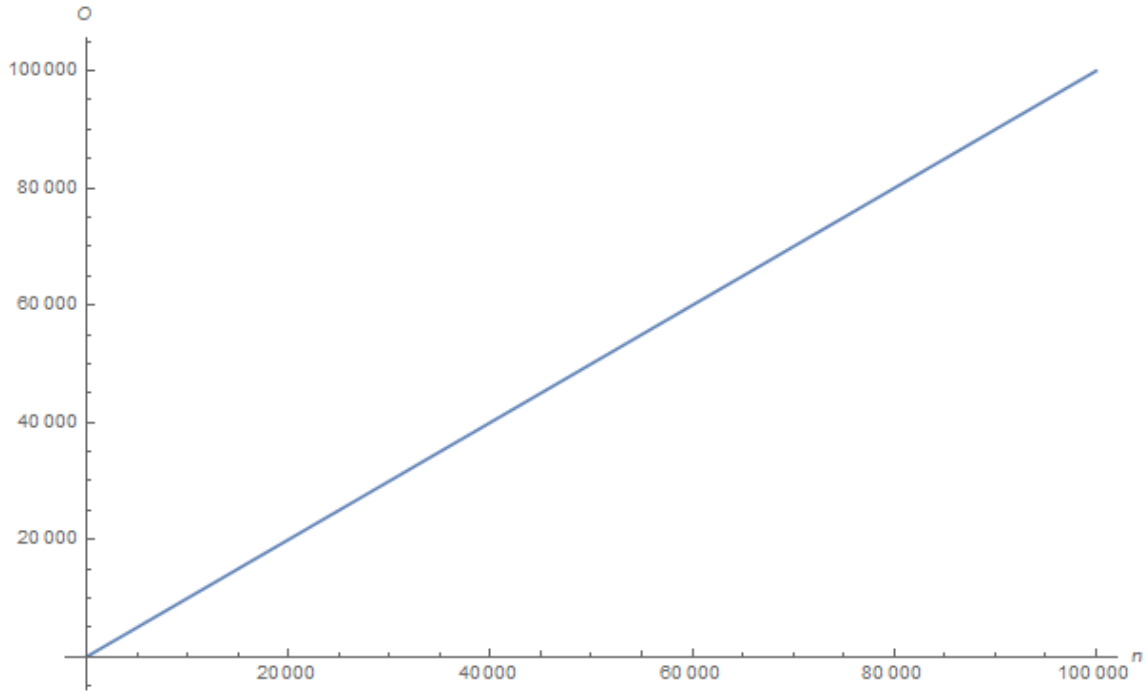
1.1. O(1)



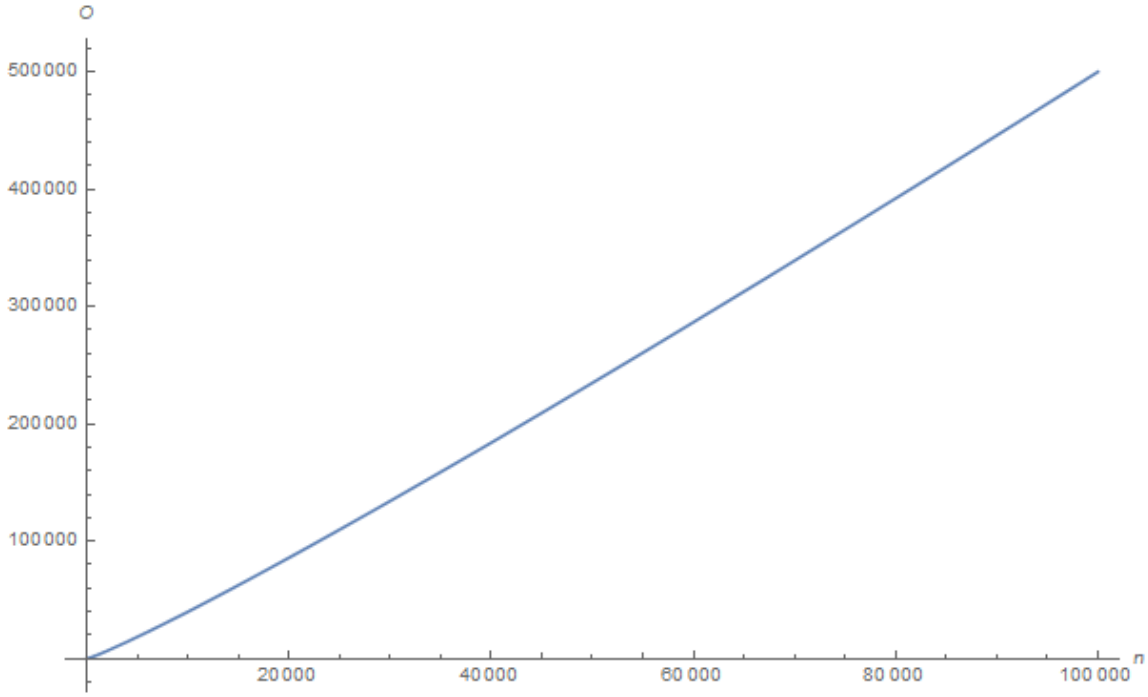
1.2. O(log n)



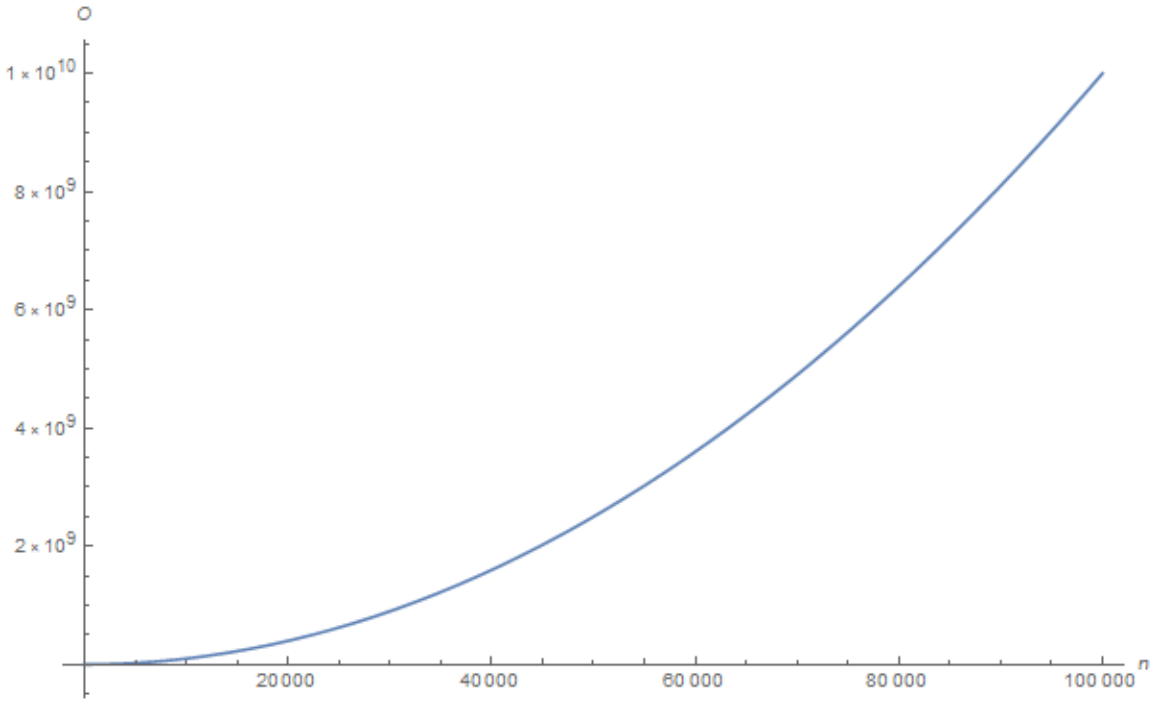
1.3. O(n)



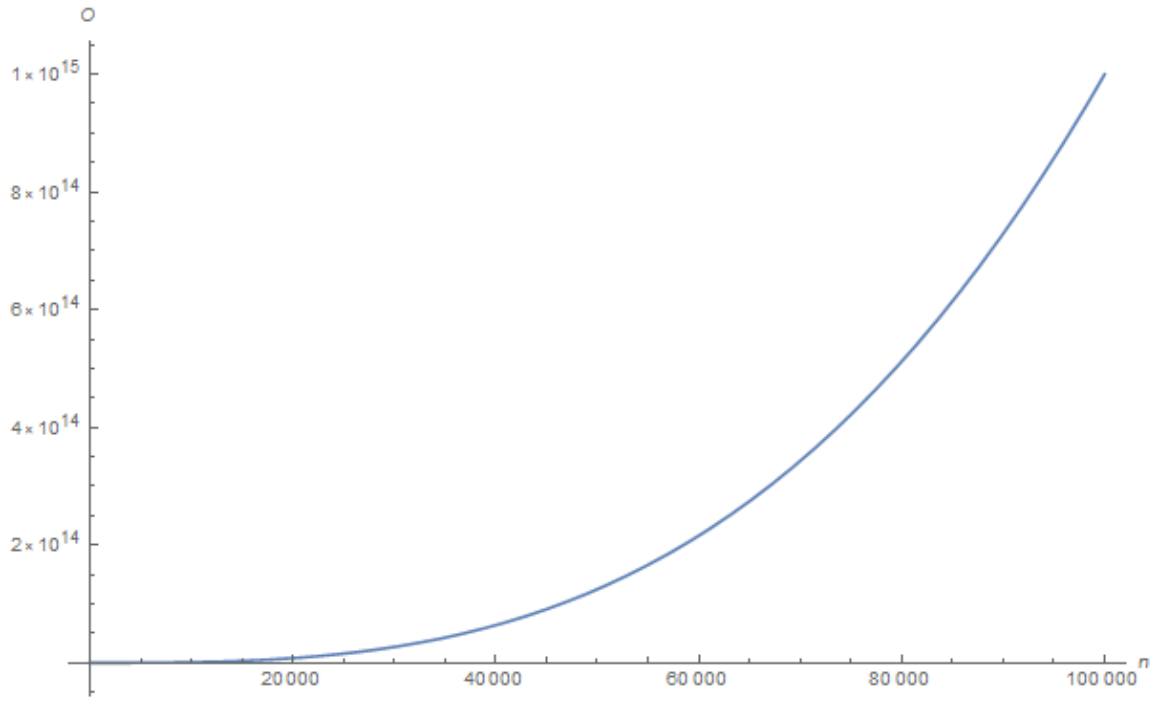
1.4. O(n log n)



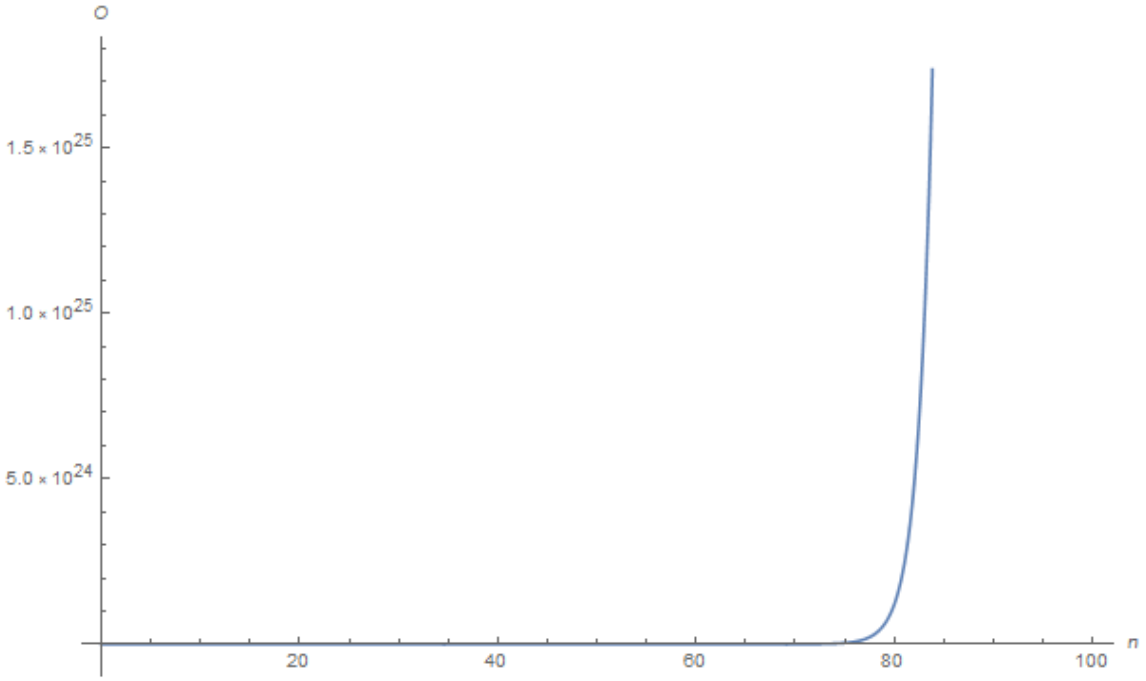
1.5. O(n^2)


O
1 × 10^10
8 × 10^9
6 × 10^9
4 × 10^9
2 × 10^9
20 000
40 000
60 000
80 000
100 000
n

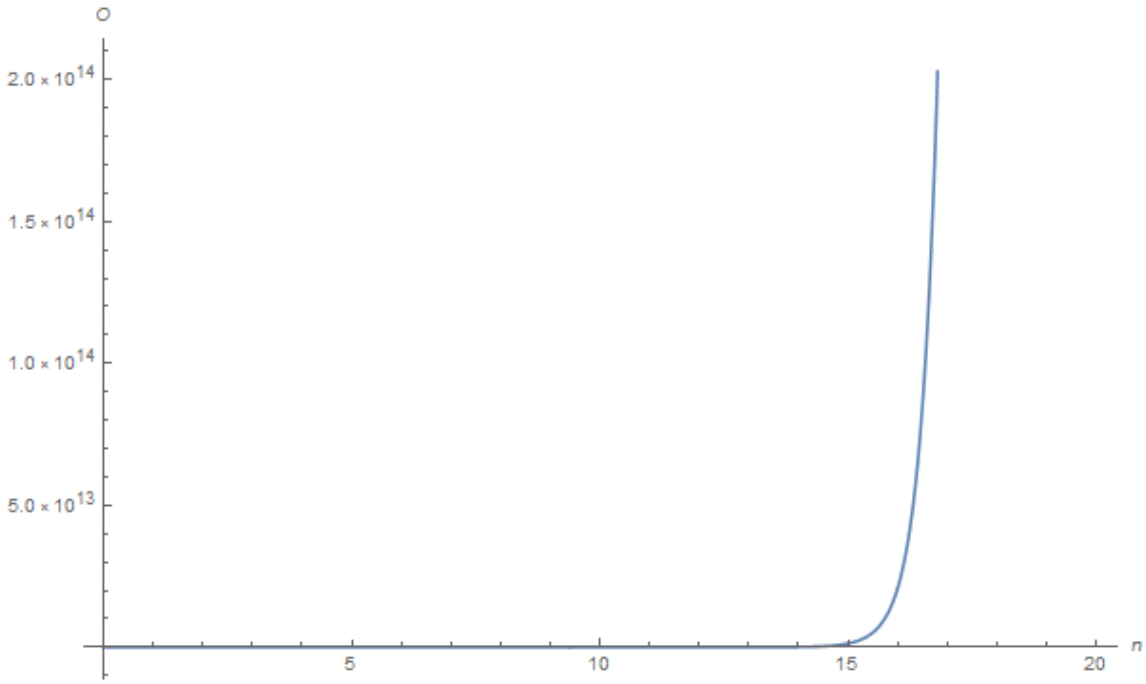
1.6. O(n^3)


O
1 × 10^15
8 × 10^14
6 × 10^14
4 × 10^14
2 × 10^14
20 000
40 000
60 000
80 000
100 000
n

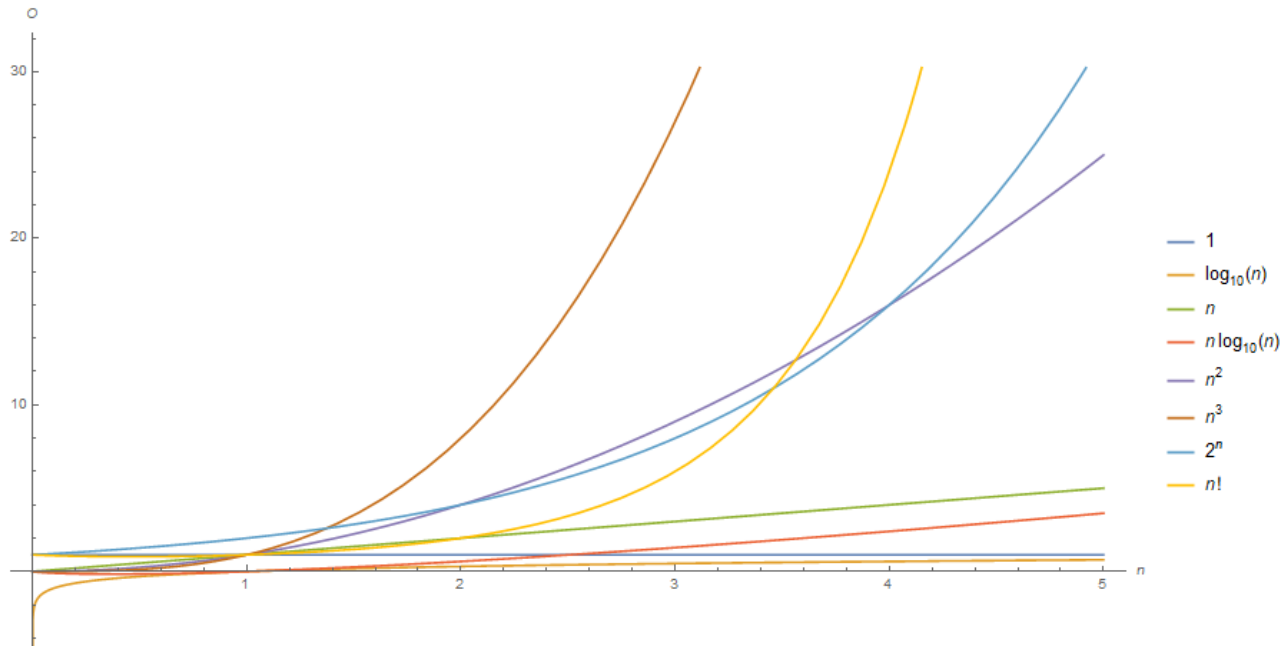
1.7. O(c^n); $c > 1$. En este caso c = 2



1.8. O(n!)

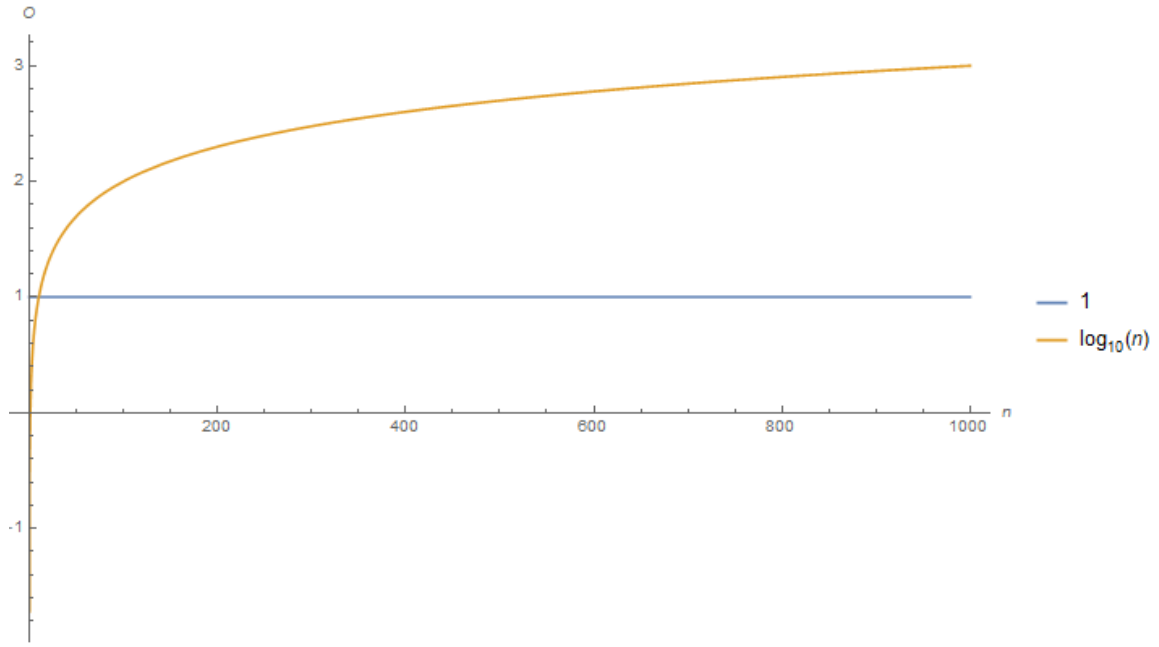


1.9. Comparación entre los ordenes de complejidad

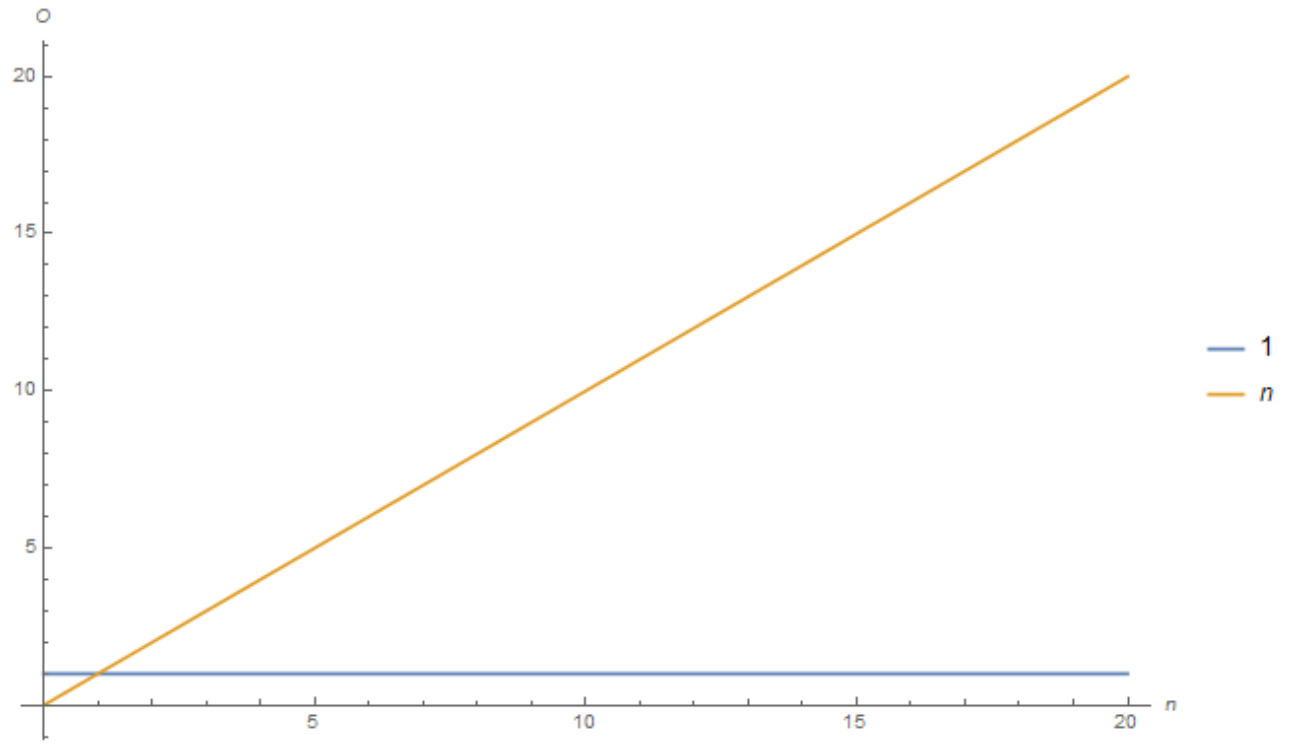


2. Confronte en pares a todos los ordenes en un rango de 0 < n < 1,000

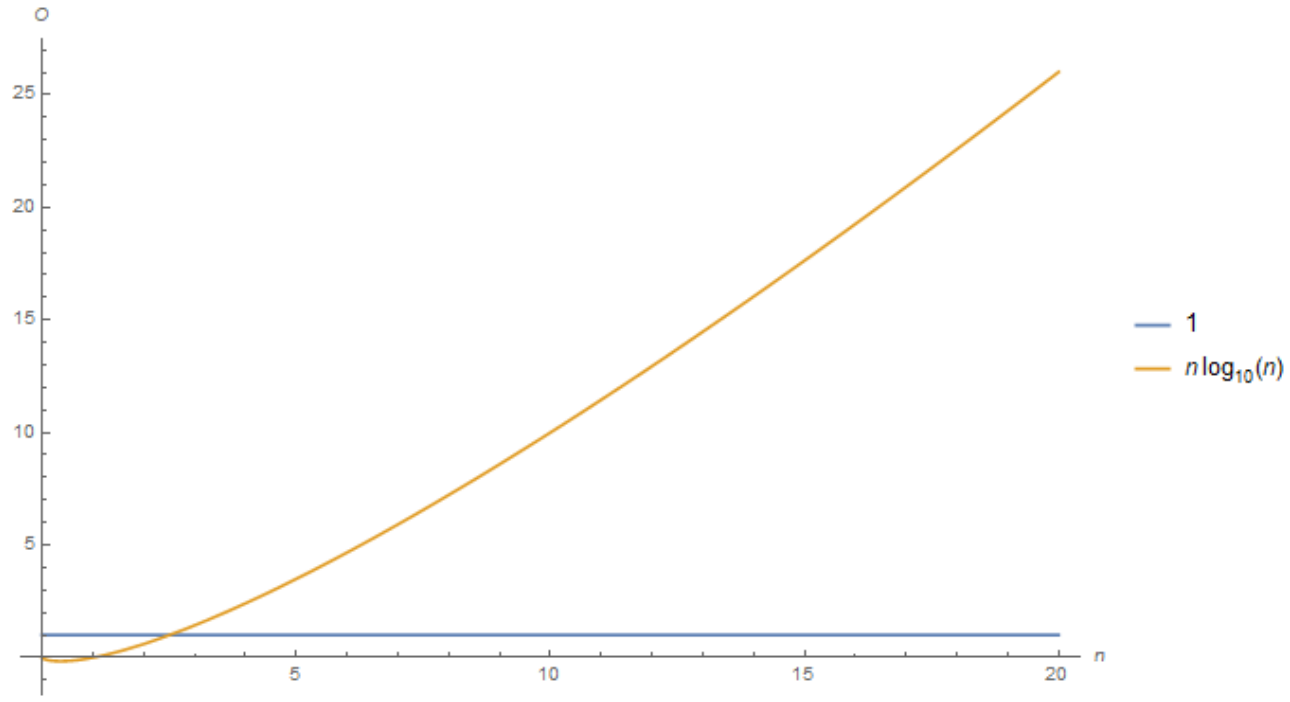
2.1. O(1) vs O(log n)



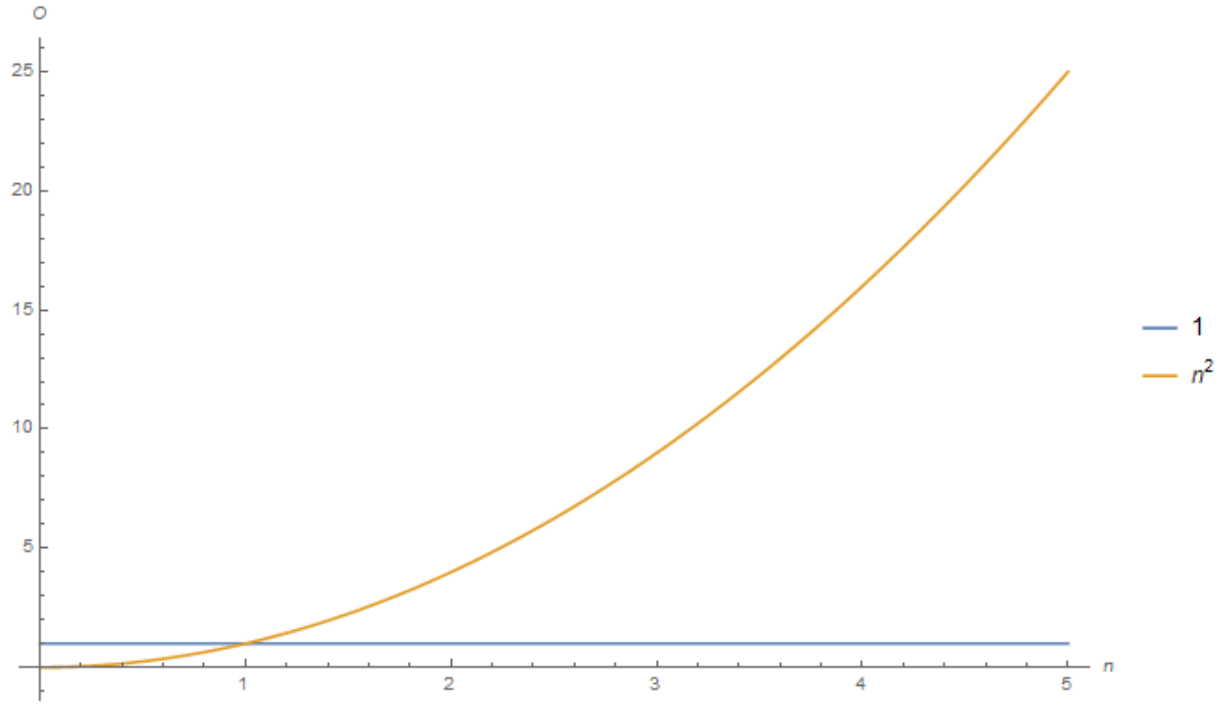
2.2. O(1) vs O(n)



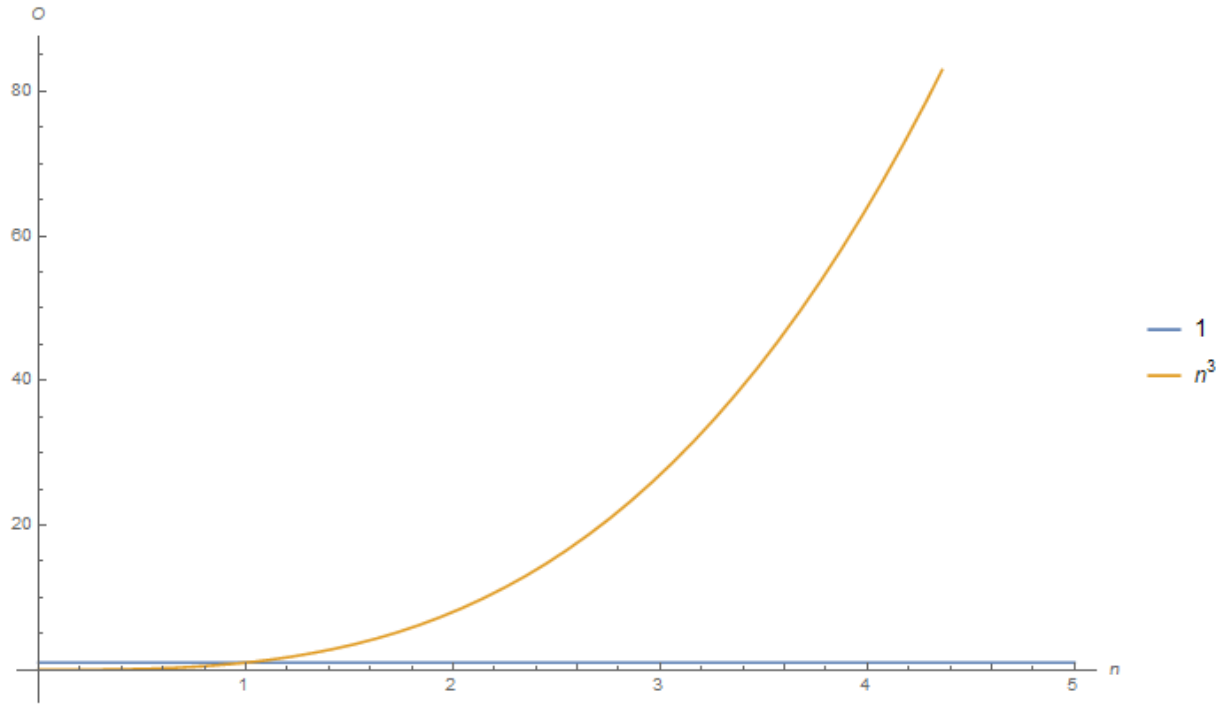
2.3. O(1) vs O(n log n)



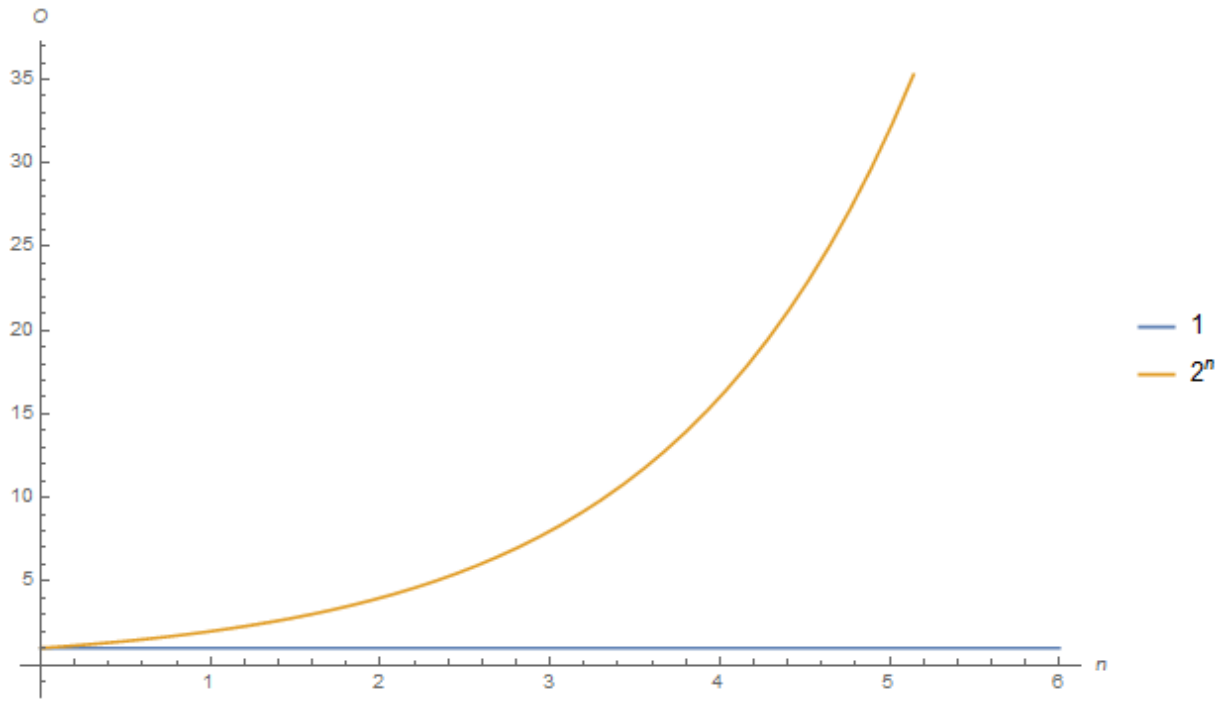
2.4. O(1) vs O(n^2)



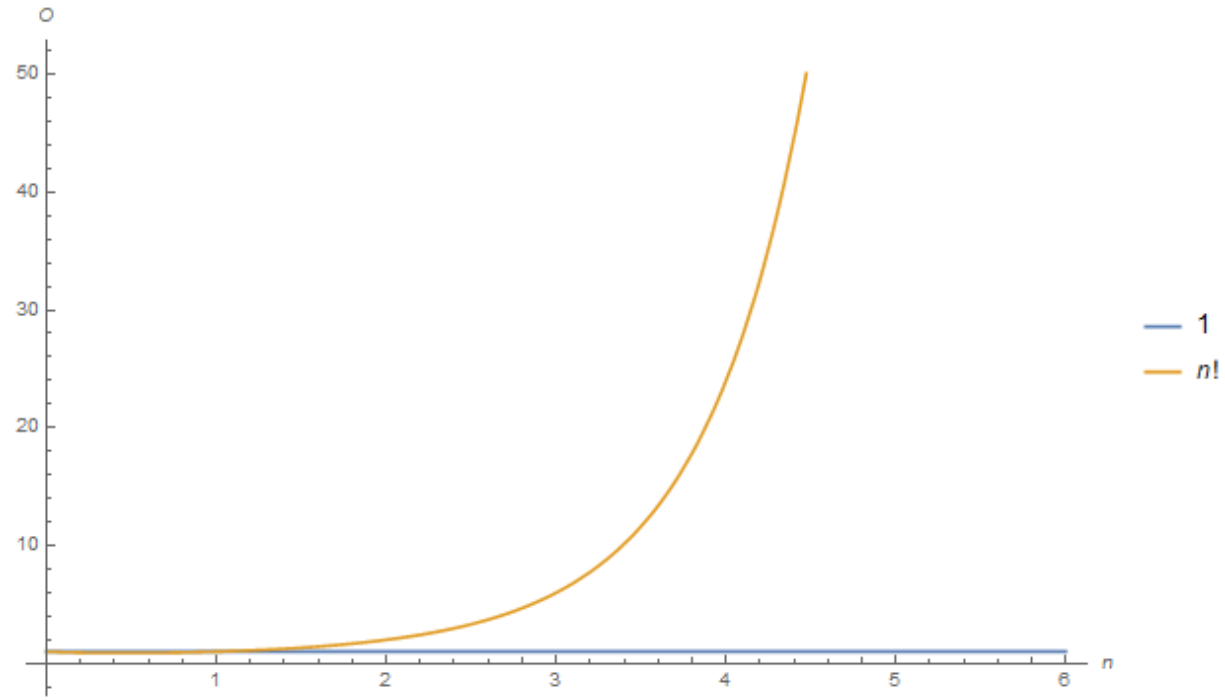
2.5. O(1) vs O(n^3)



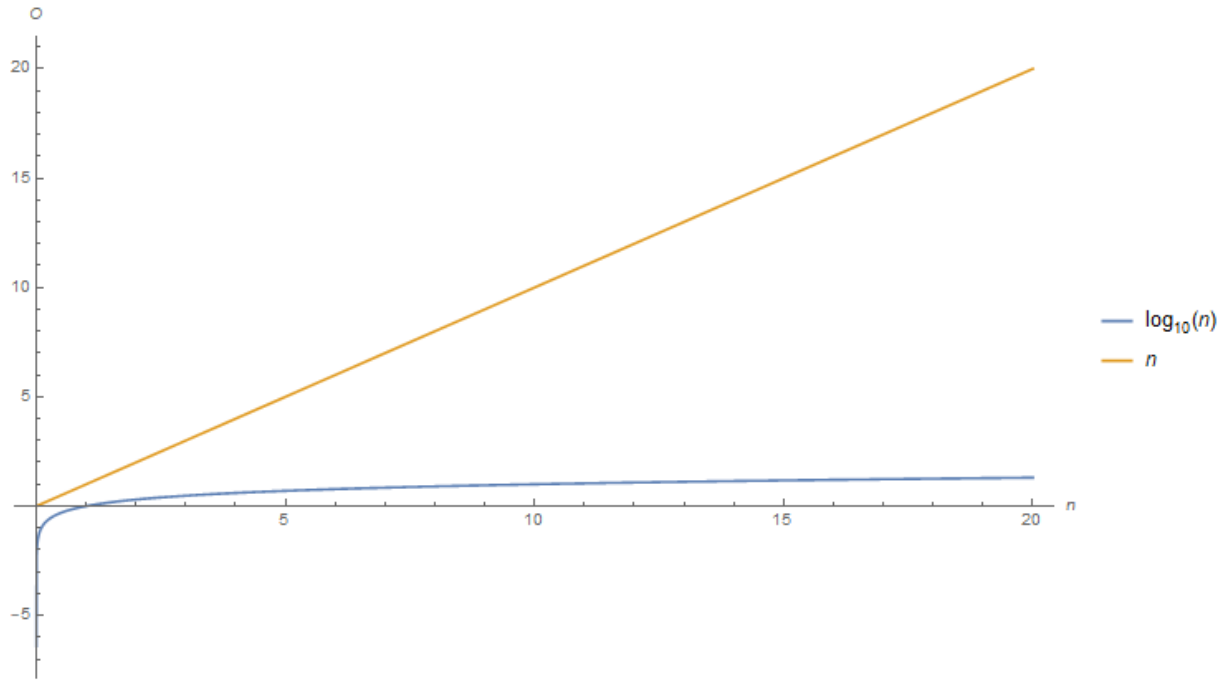
2.6. O(1) vs O(c^n) con c = 2



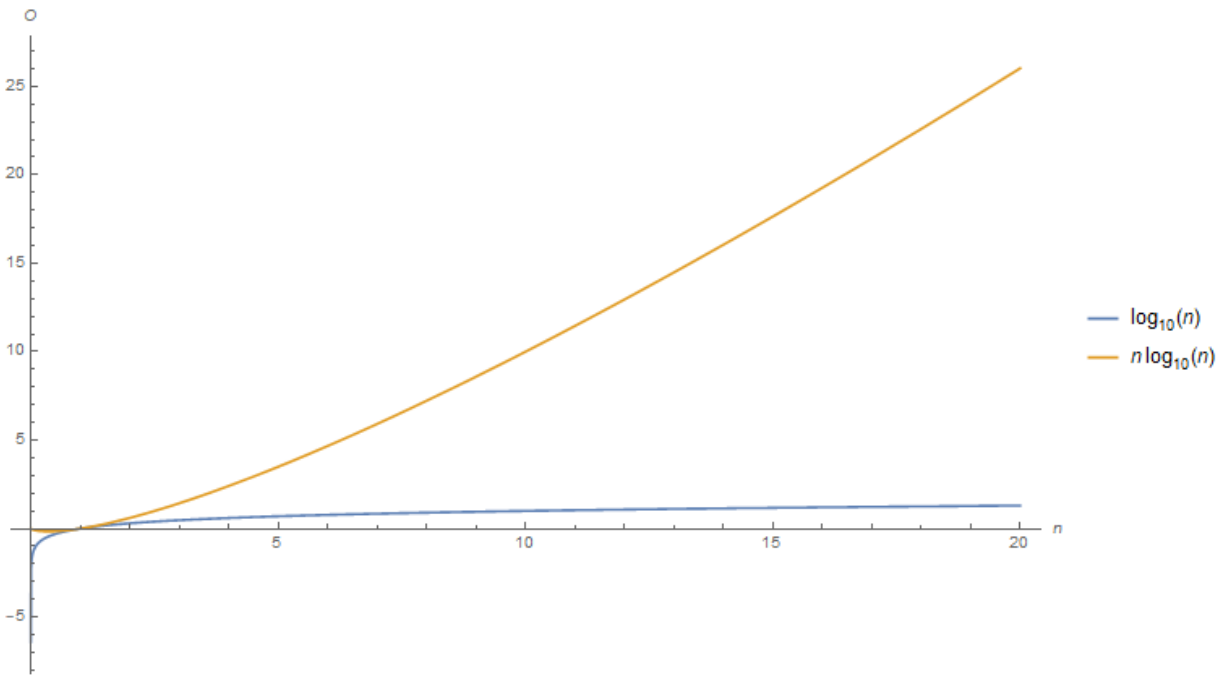
2.7. O(1) vs O(n!)



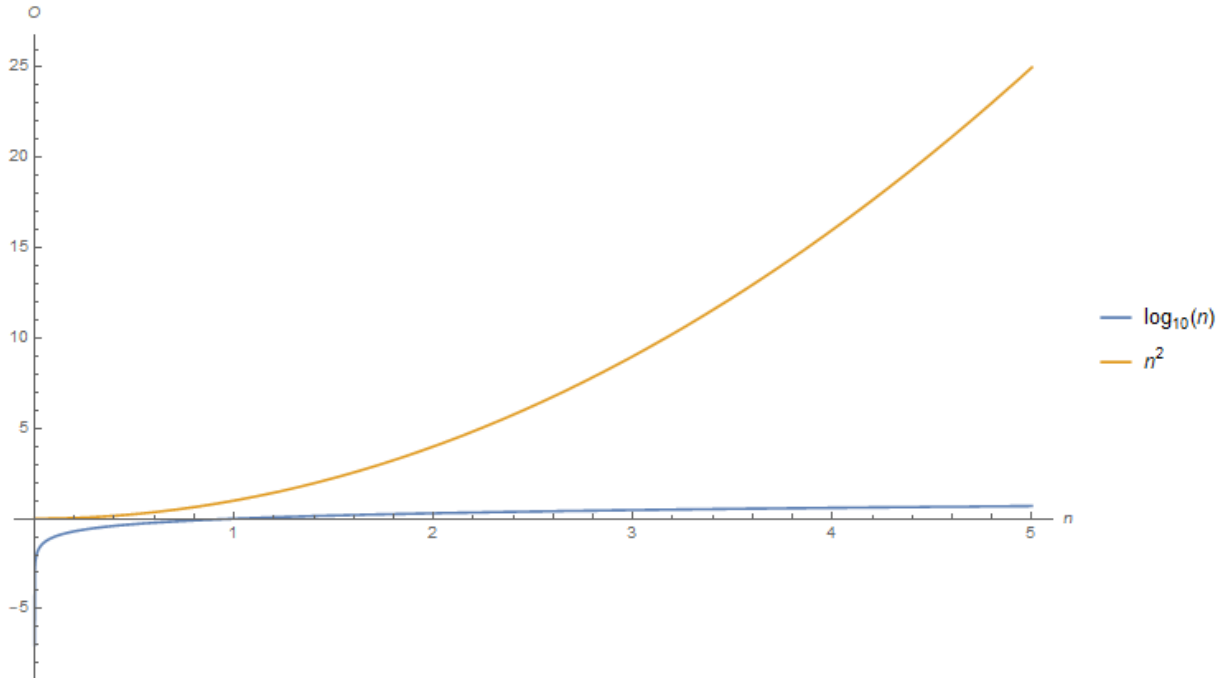
2.8. O(log n) vs O(n)



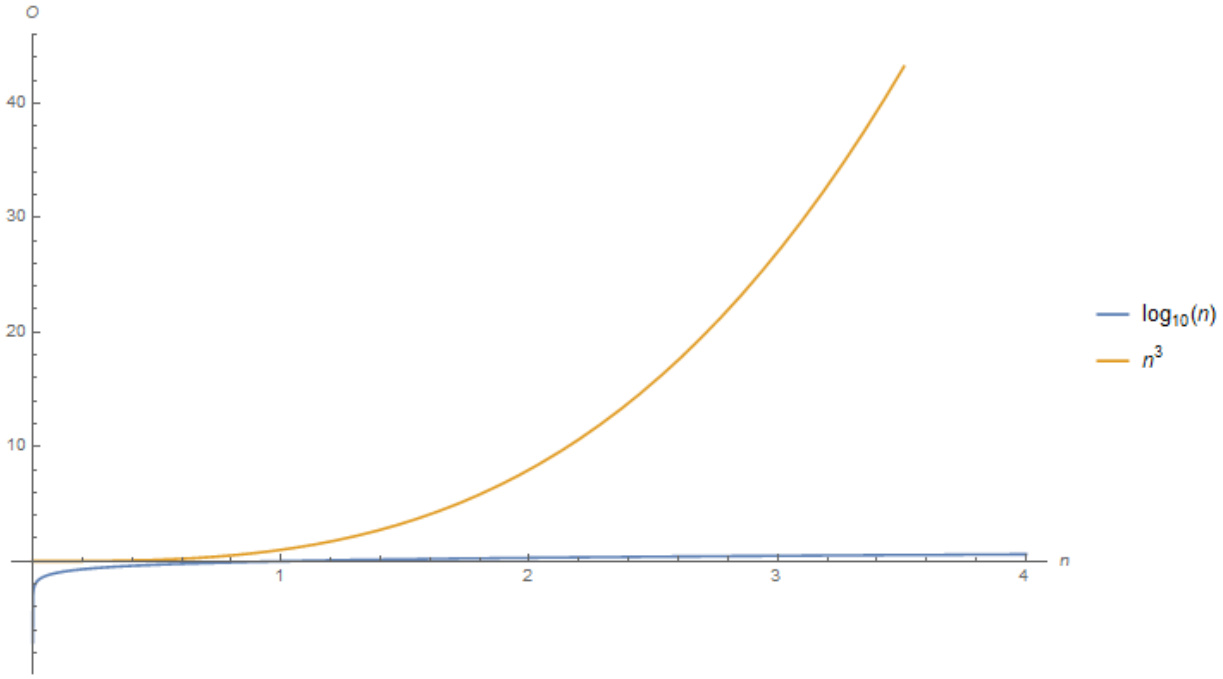
2.9. O(log n) vs O(n log n)



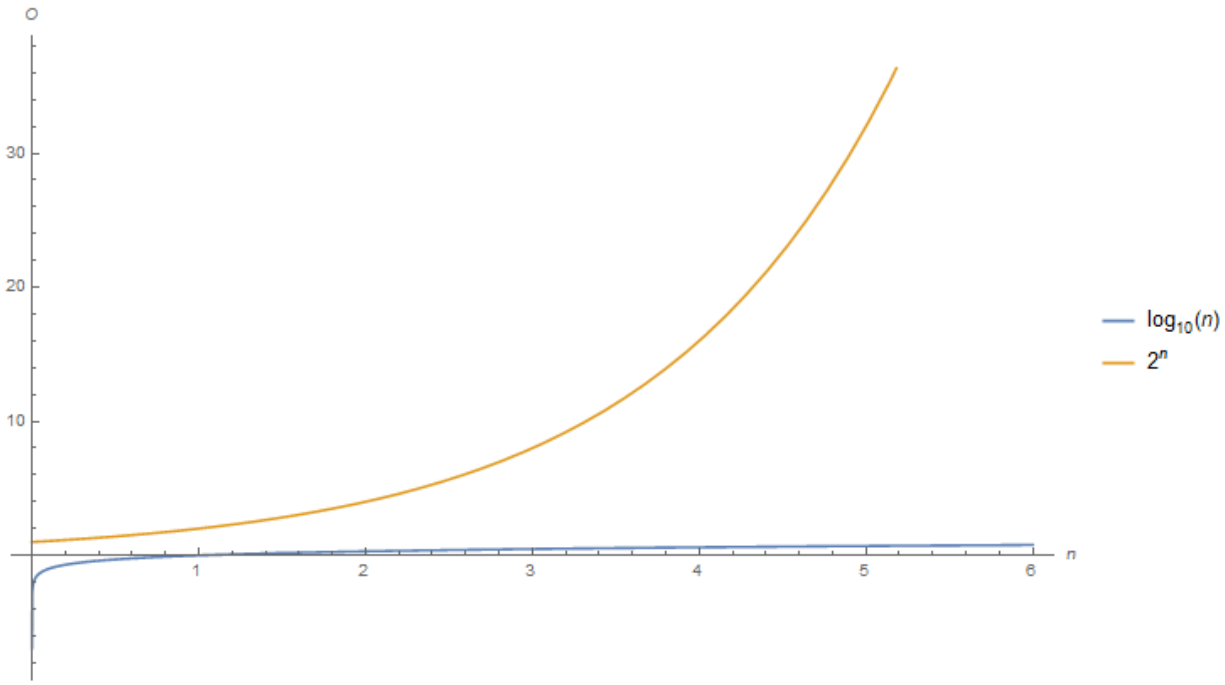
2.10. O(log n) vs O(n^2)



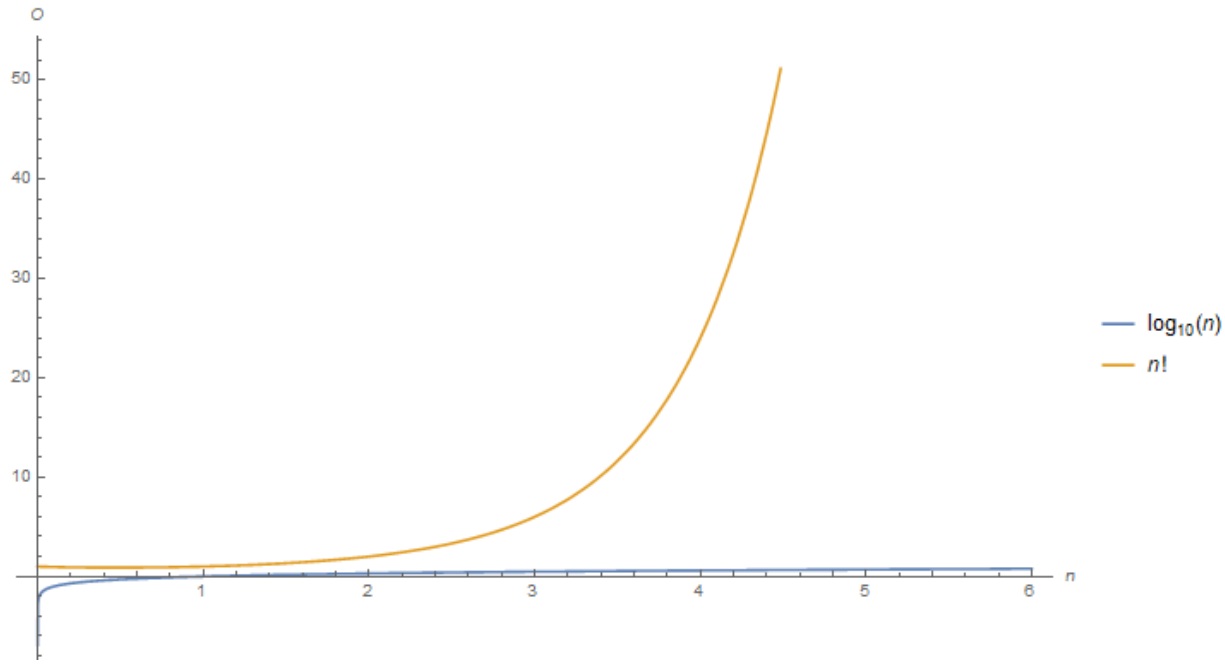
2.11. O(log n) vs O(n^3)



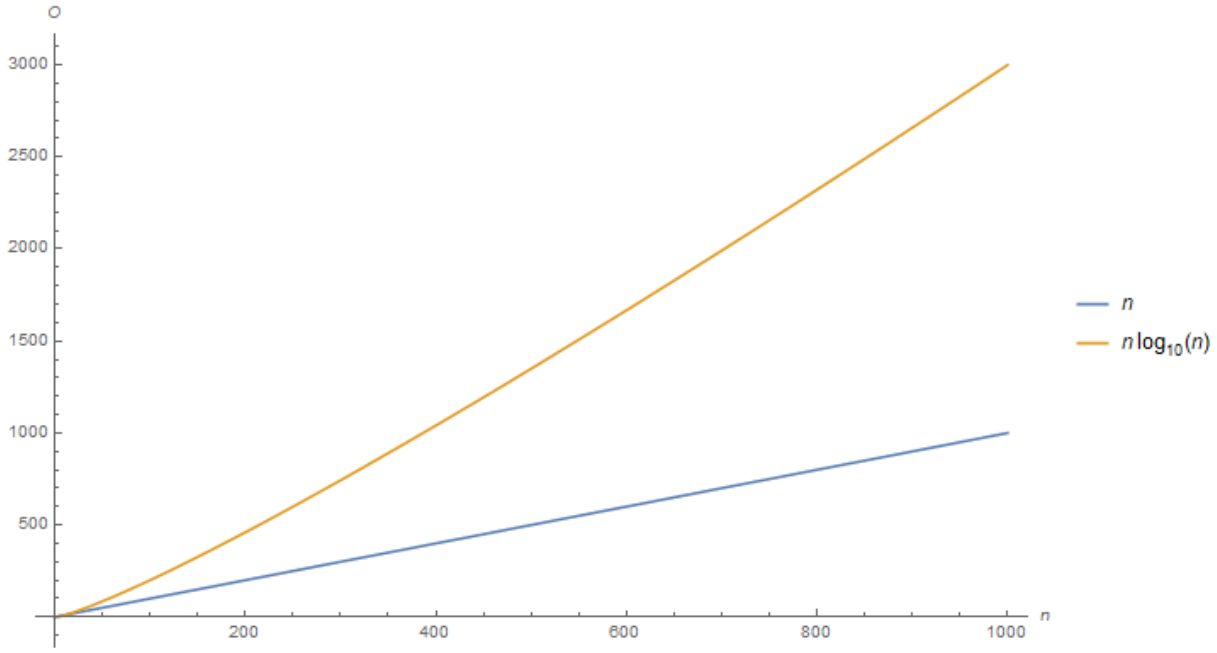
2.12. O(log n) vs O(c^n) con c = 2



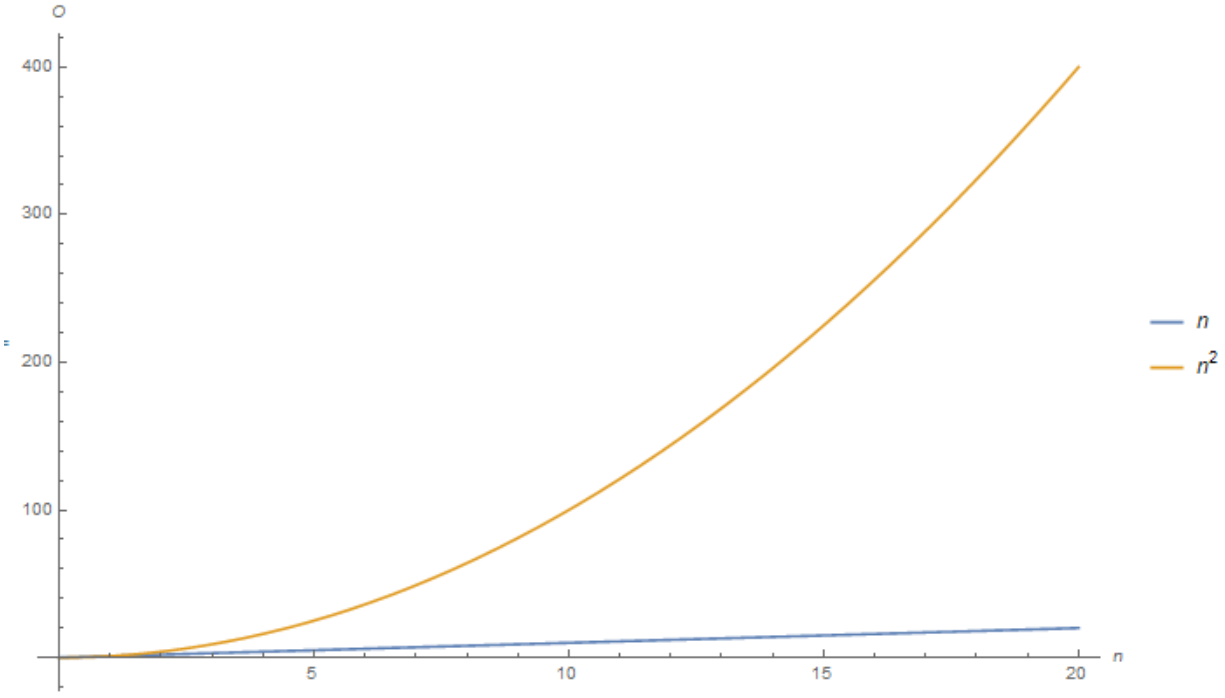
2.13. O(log n) vs O(n!)



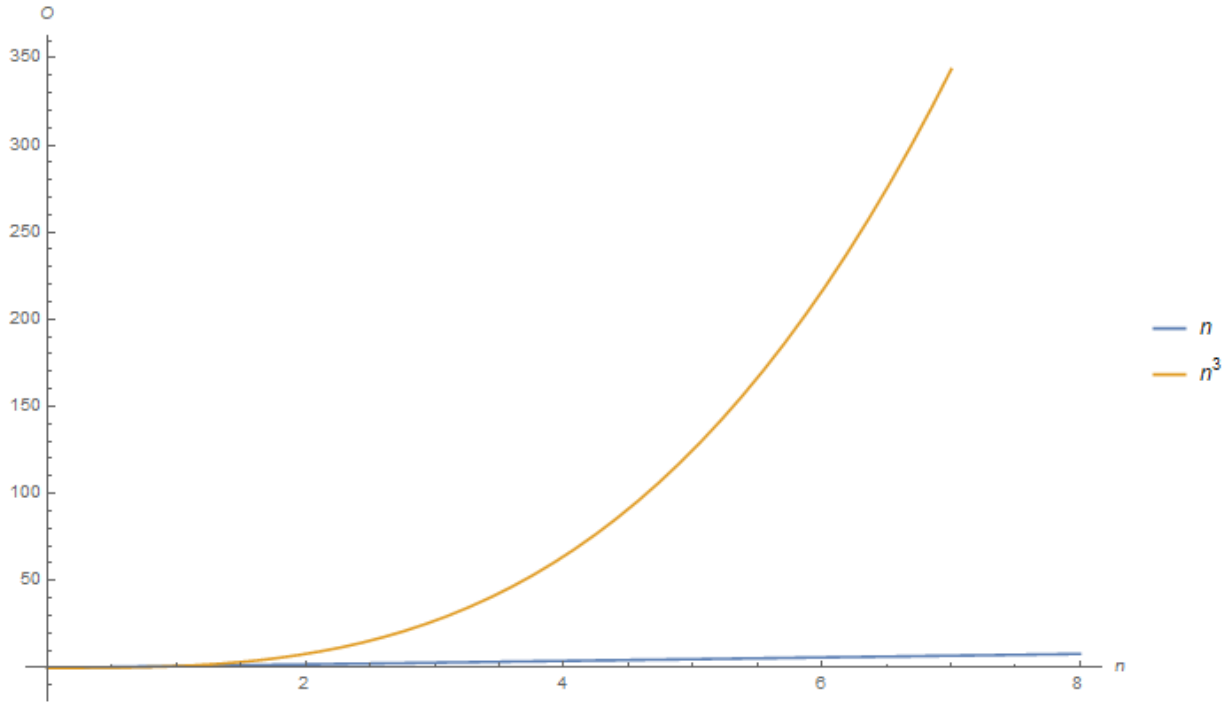
2.14. O(n) vs O(n log n)



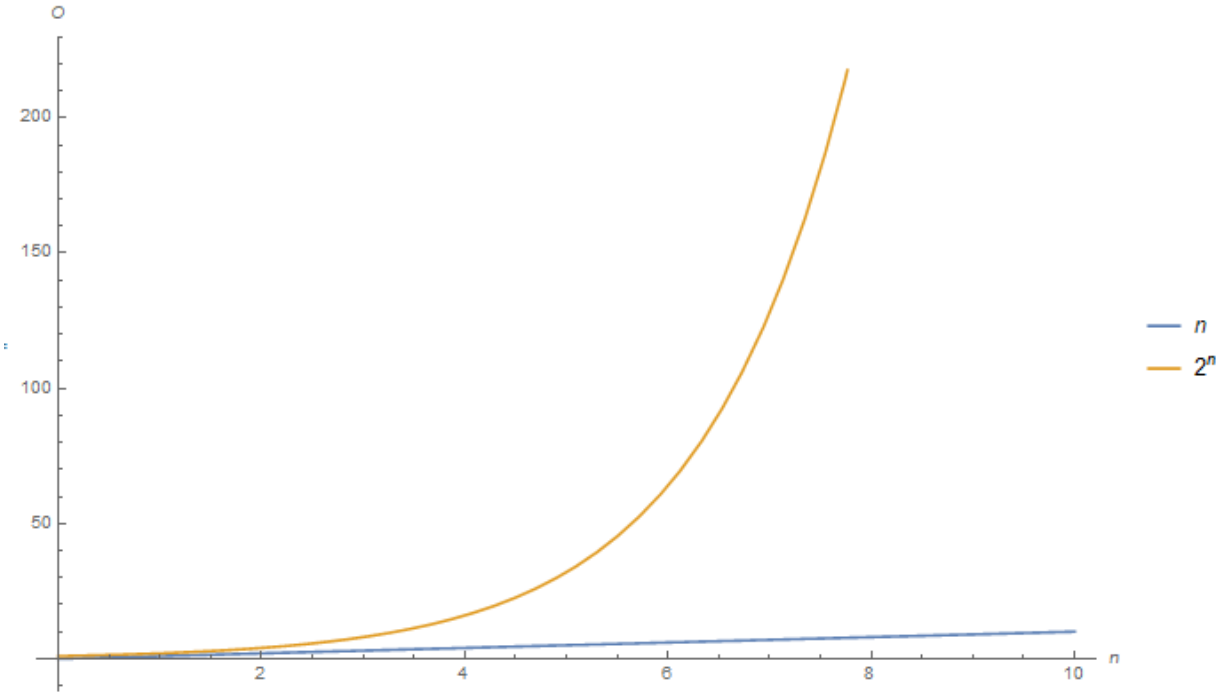
2.15. O(n) vs O(n^2)



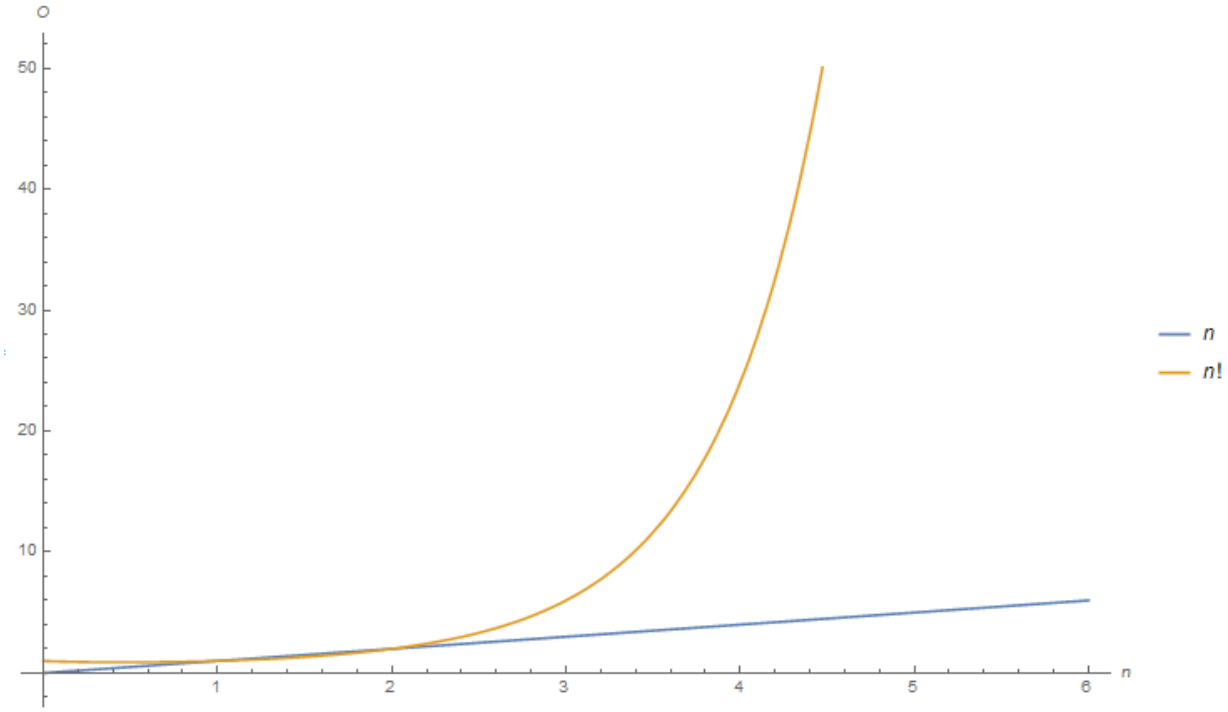
2.16. O(n) vs O(n^3)



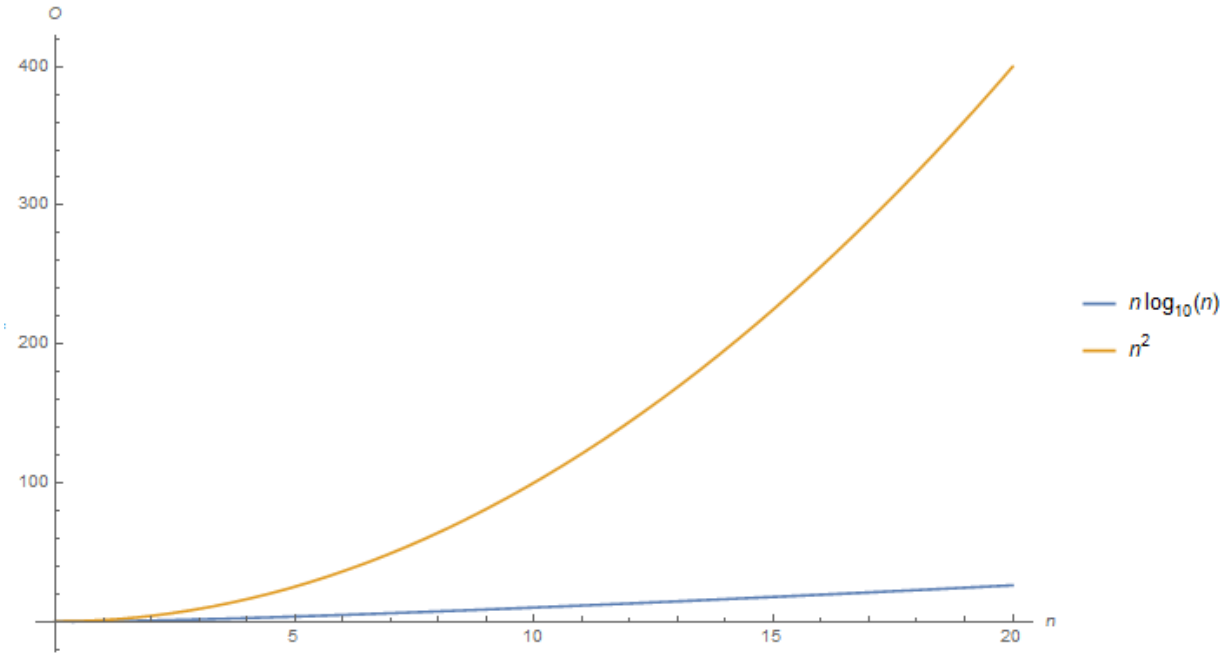
2.17. O(n) vs O(c^n) con c = 2



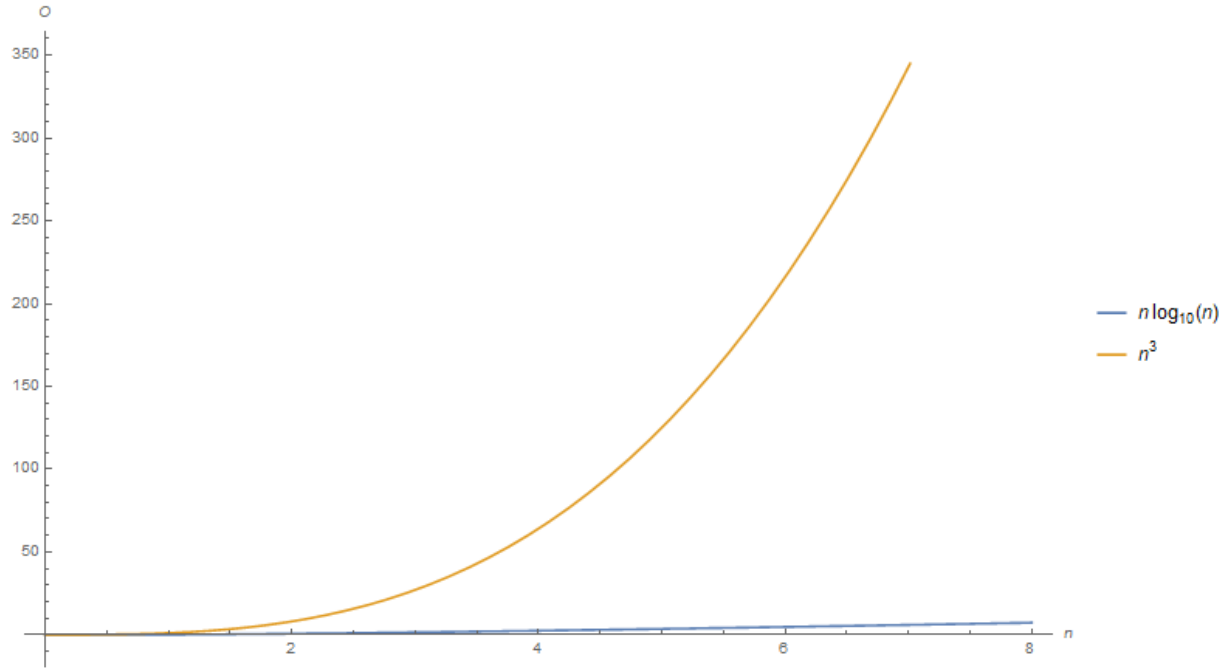
2.18. O(n) vs O(n!)



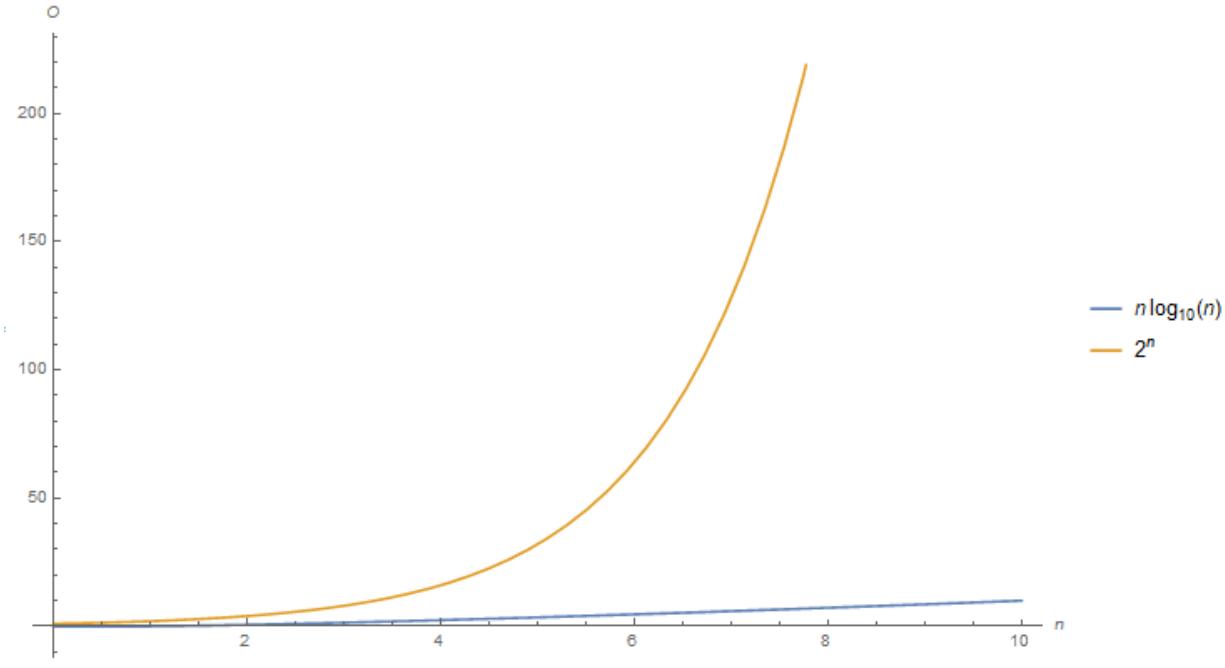
2.19. O(n log n) vs O(n^2)



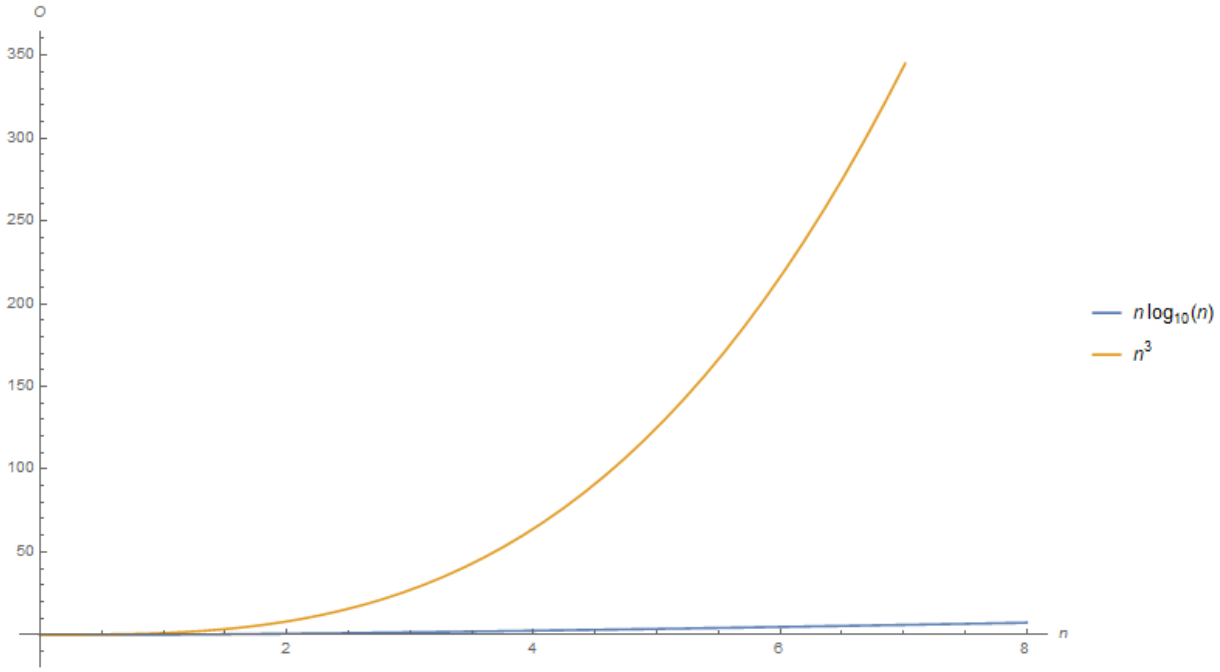
2.20. O(n log n) vs O(n^3)



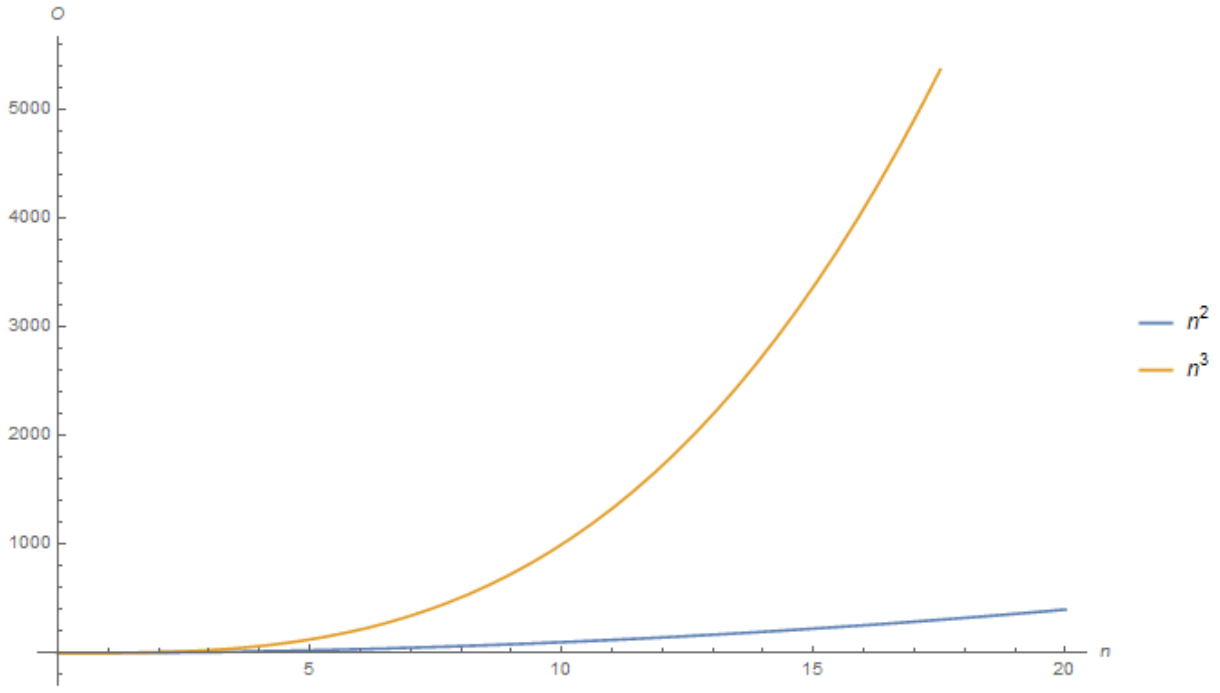
2.21. O(n log n) vs O(c^n) con c = 2



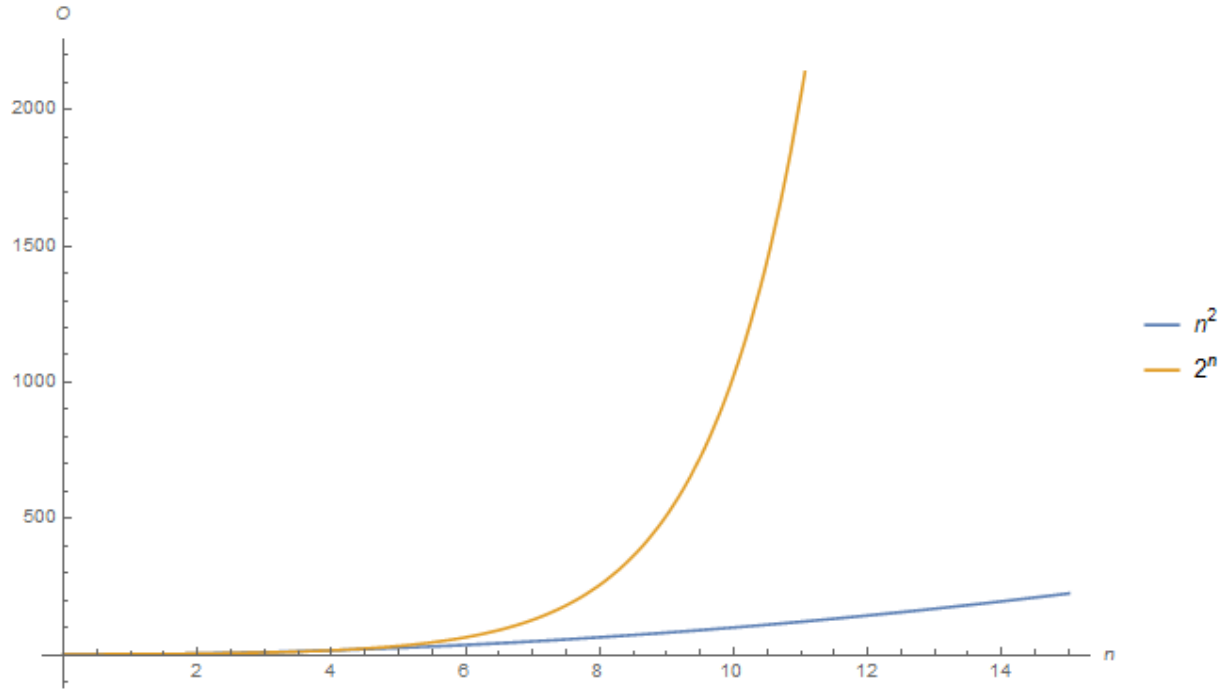
2.22. O(n log n) vs O(n!)



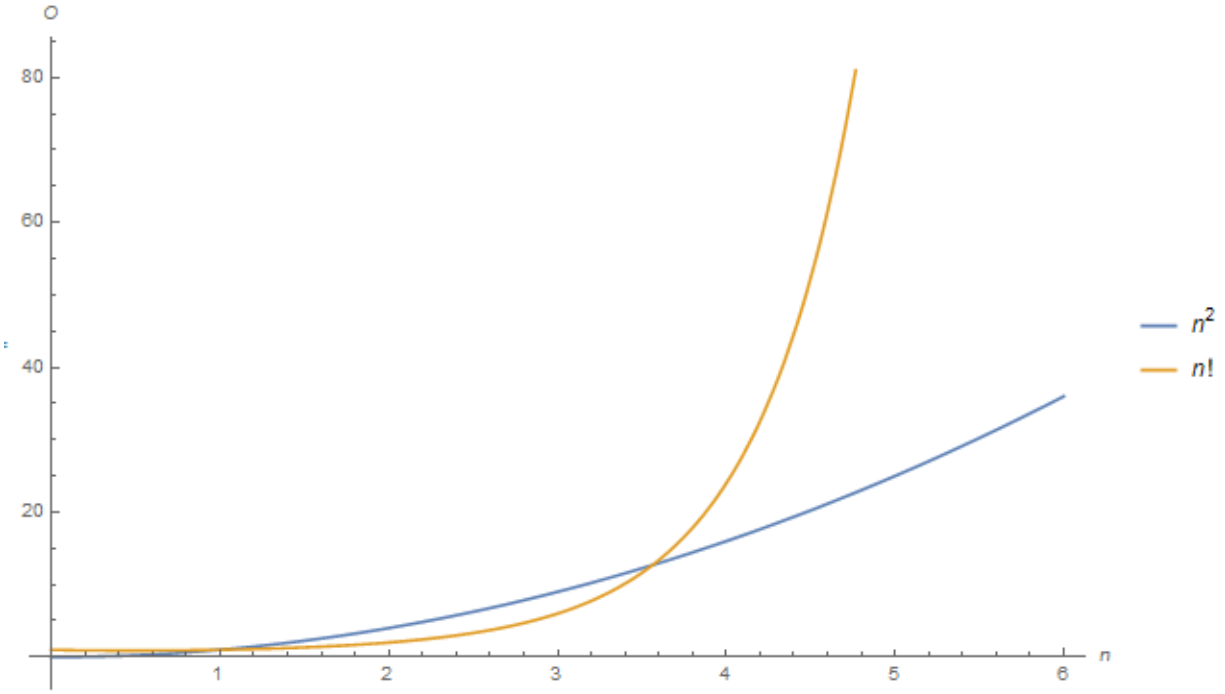
2.23. O(n^2) vs O(n^3)



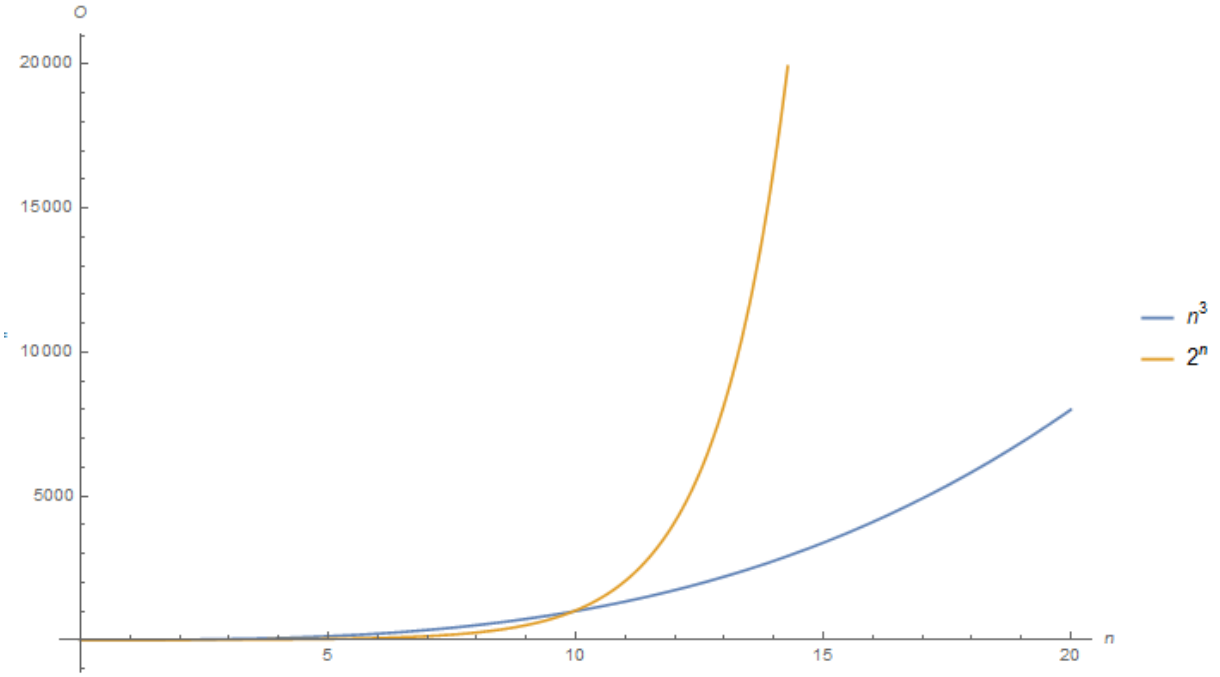
2.24. O(n^2) vs O(c^n) con c = 2



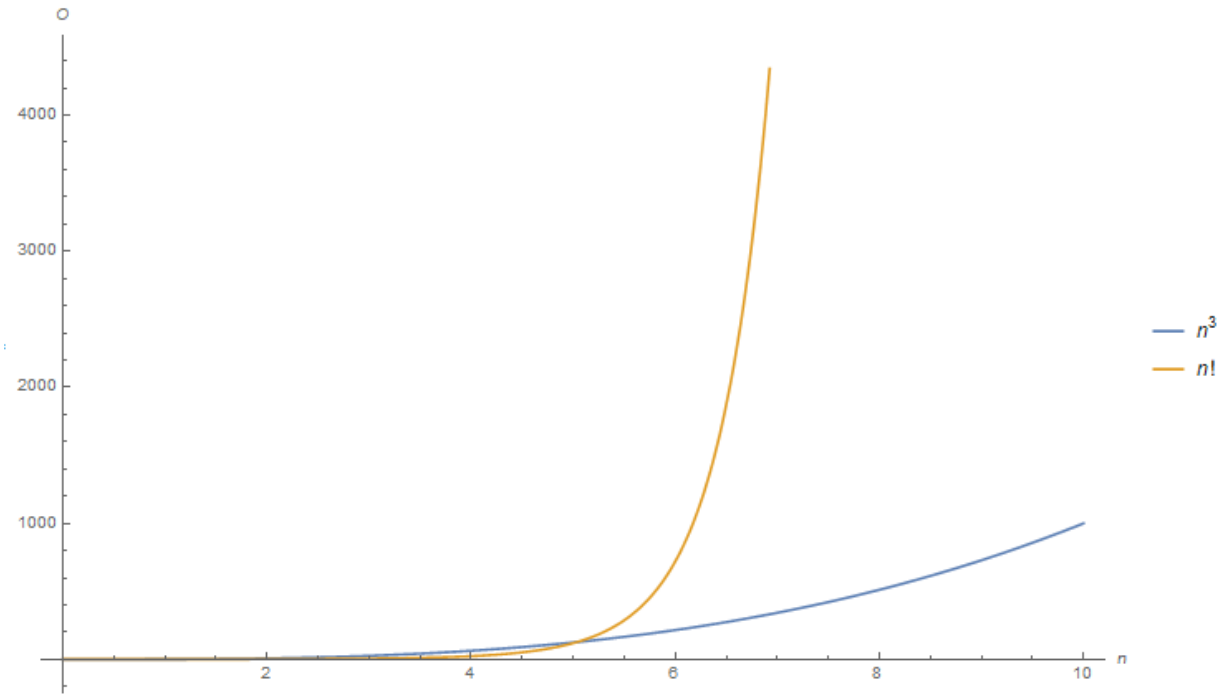
2.25. O(n^2) vs O(n!)



2.26. O(n^3) vs O(c^n) con c = 2



2.27. O(n^3) vs O(n!)



2.28. O(n!) vs O(c^n) con c = 2