



INSTITUTO POLITÉCNICO NACIONAL
ESCUELA SUPERIOR DE CÓMPUTO

Ejercicio 03: Graficación de ordenes de complejidad

Unidad de aprendizaje: Análisis de Algoritmos

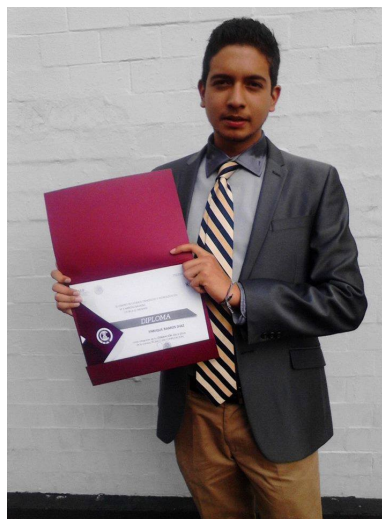
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Profesor(a):

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27 de septiembre 2018

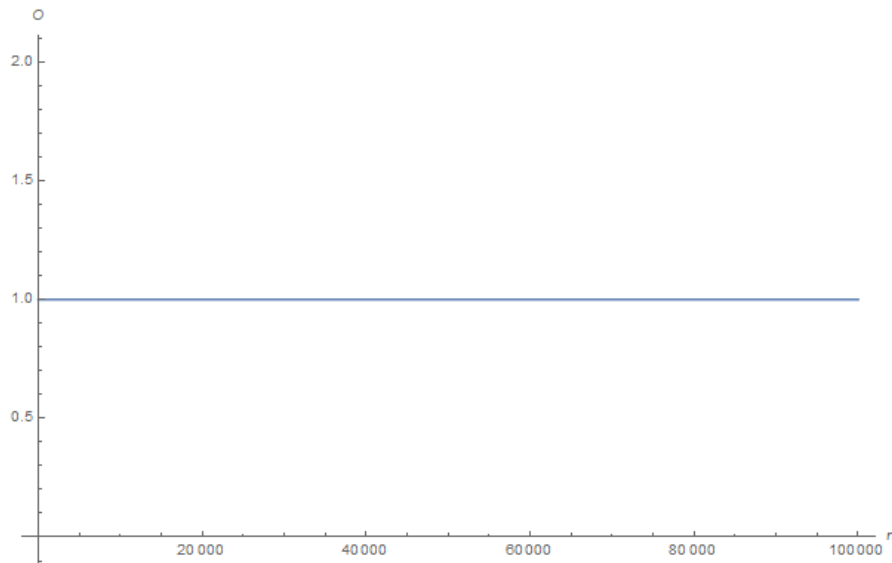
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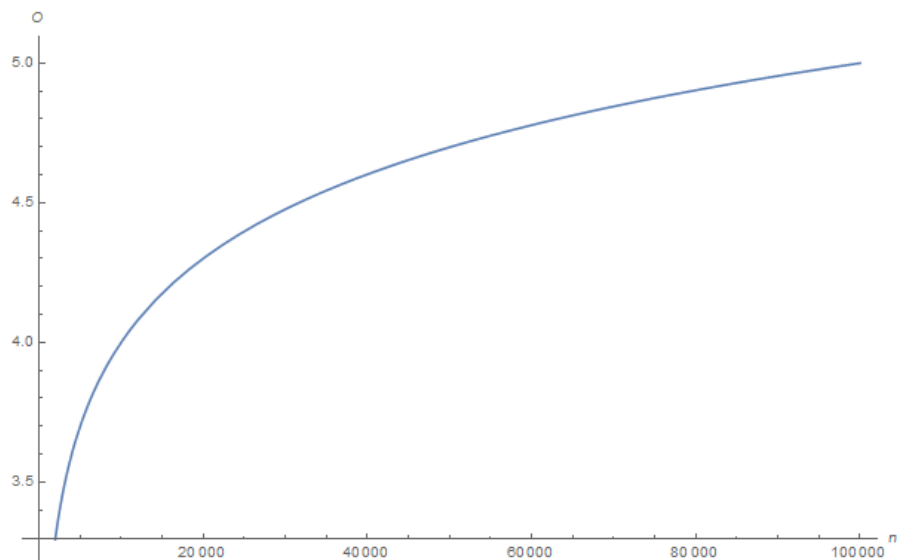
1. Dados los ordenes de complejidad graficar cada uno de estos de manera separada para un rango de $0 < n < 100,000$.

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.

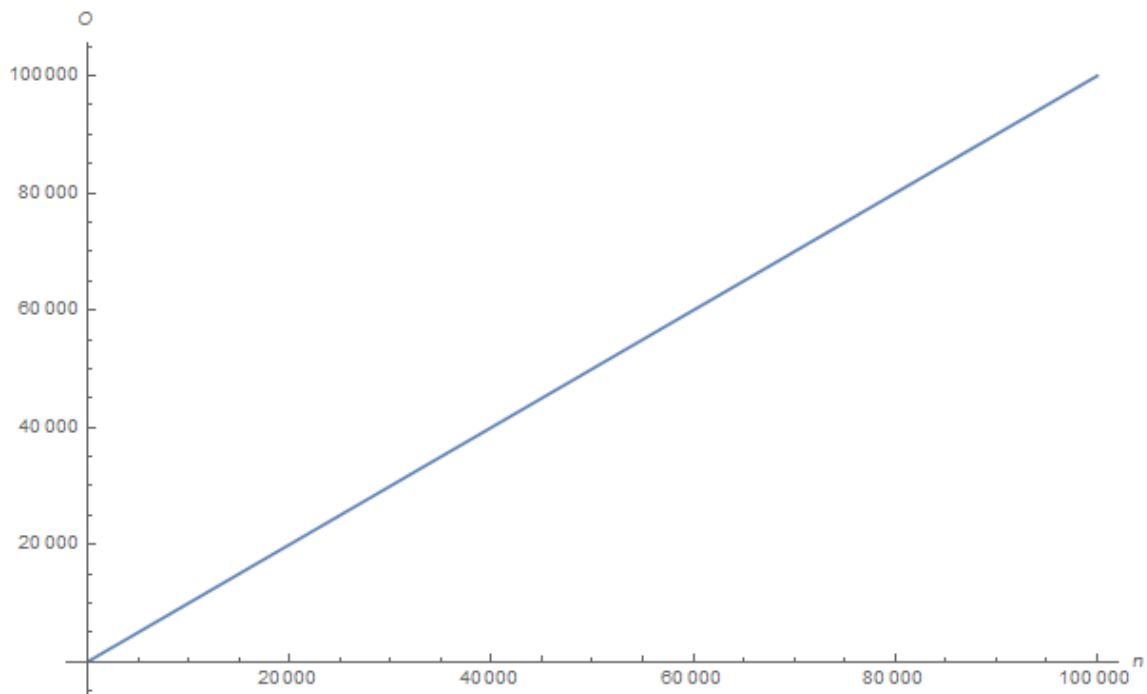
1.1. $O(1)$



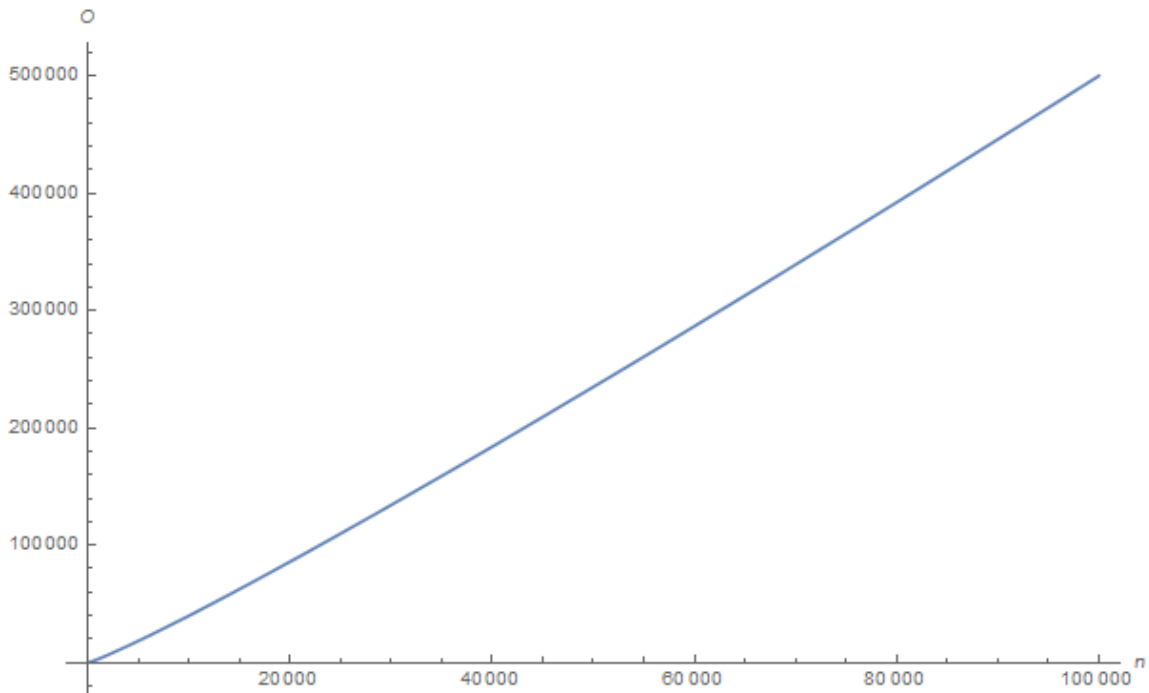
1.2. $O(\log n)$

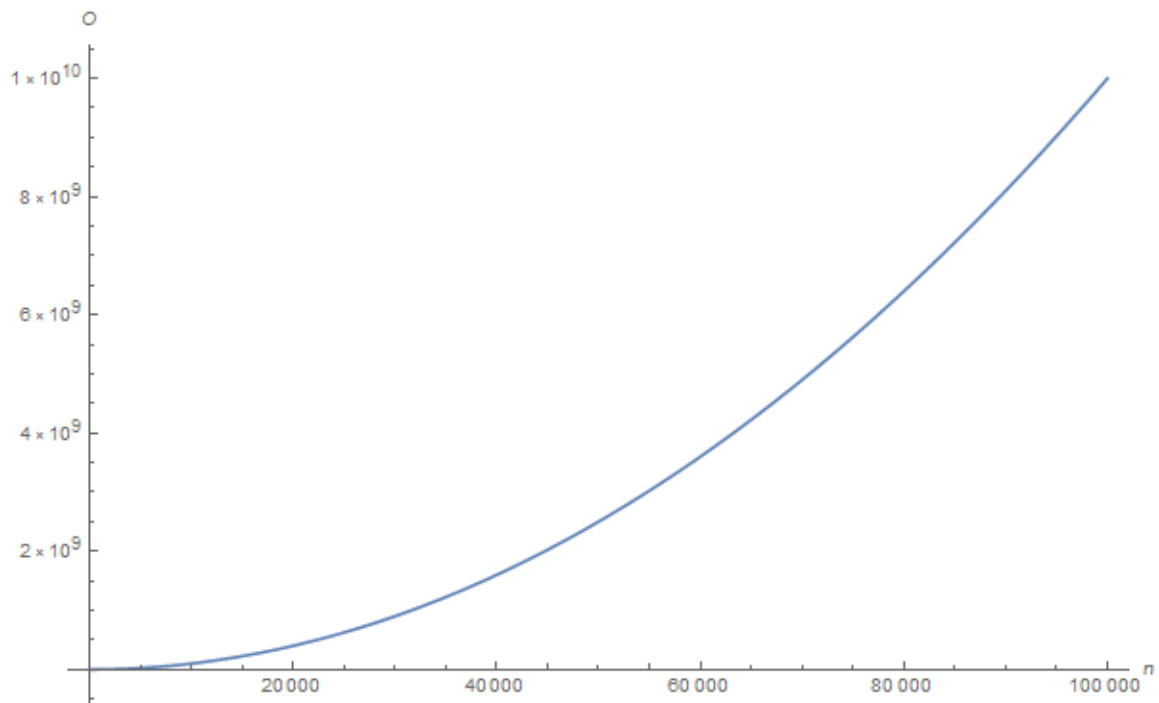
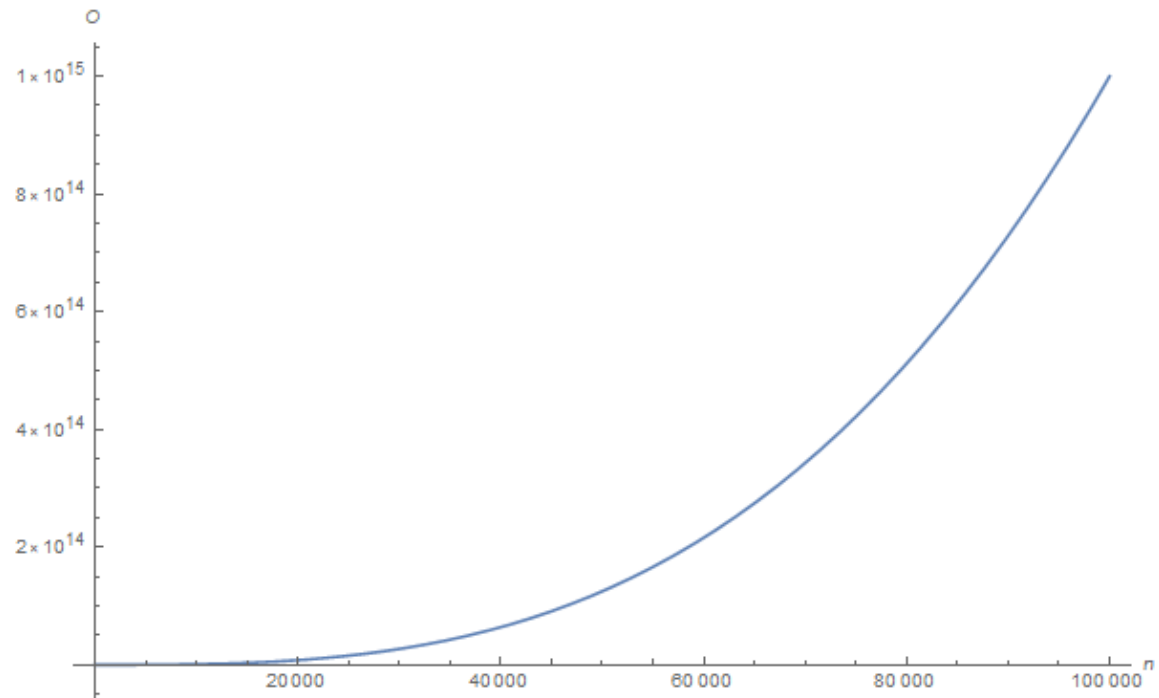


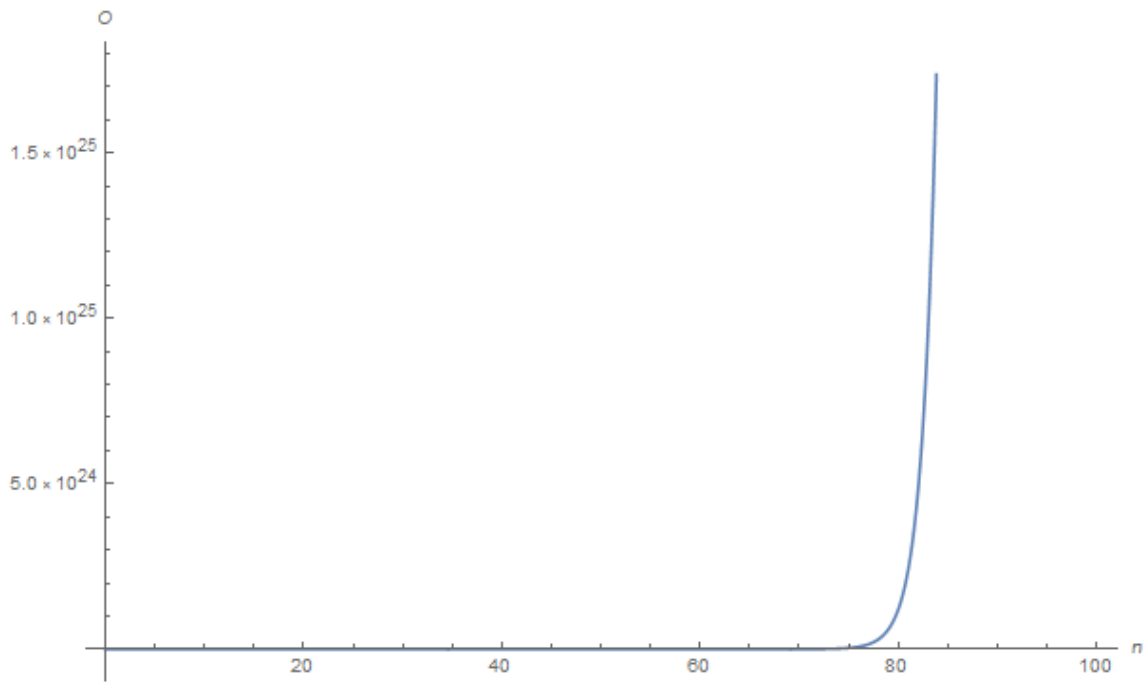
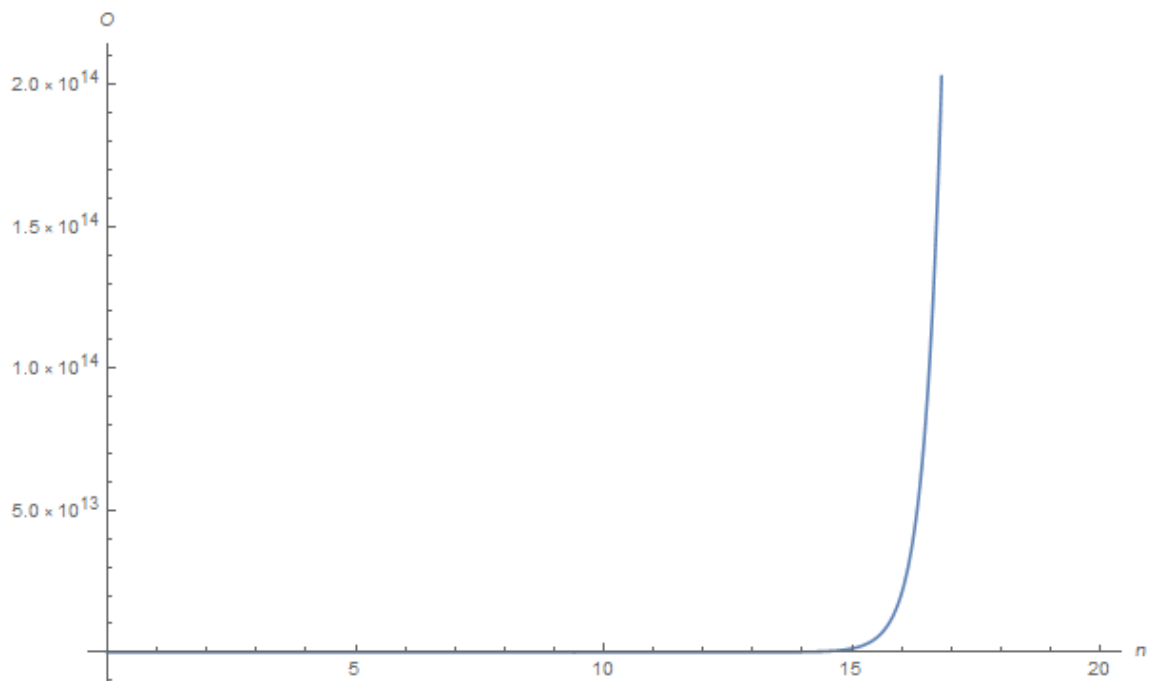
1.3. $O(n)$



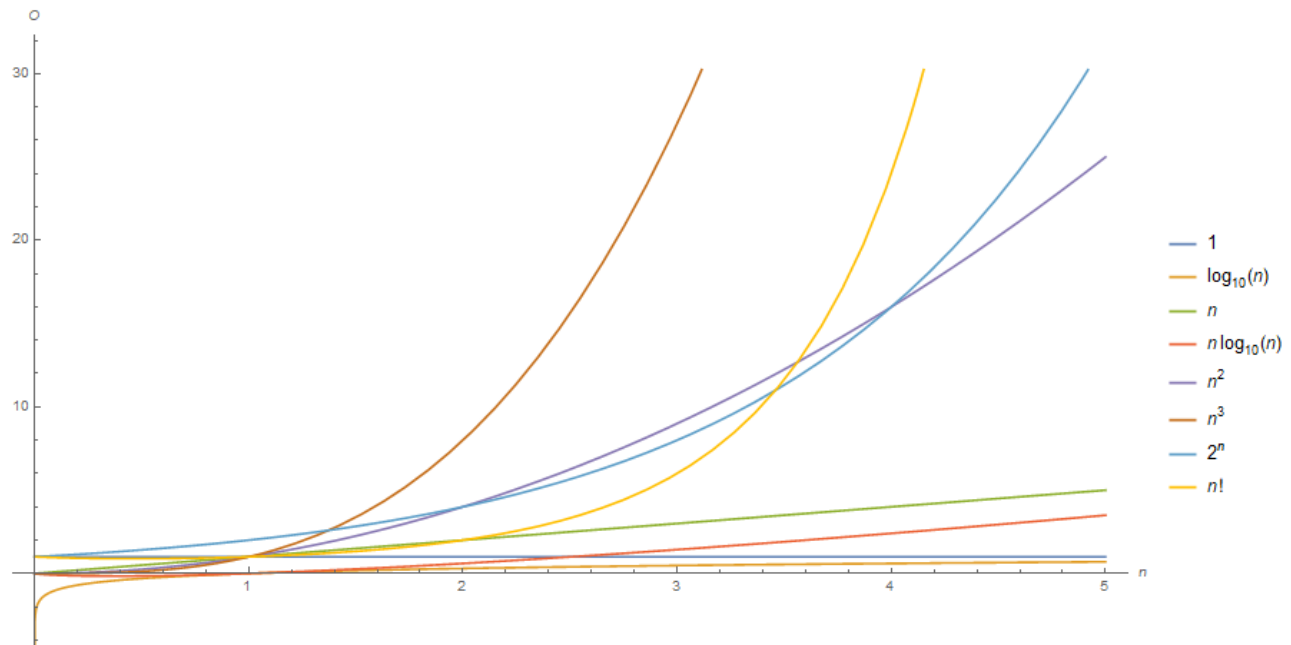
1.4. $O(n \log n)$



1.5. $O(n^2)$ **1.6. $O(n^3)$** 

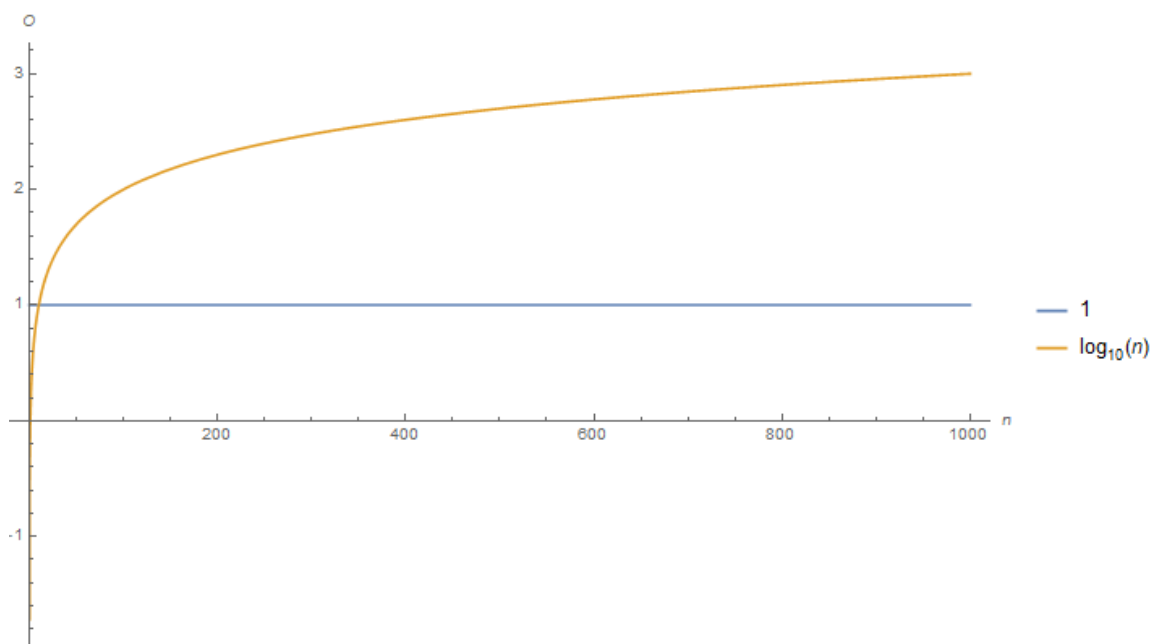
1.7. $O(c^n)$; $c > 1$. En este caso $c = 2$ **1.8. $O(n!)$** 

1.9. Comparación entre los ordenes de complejidad

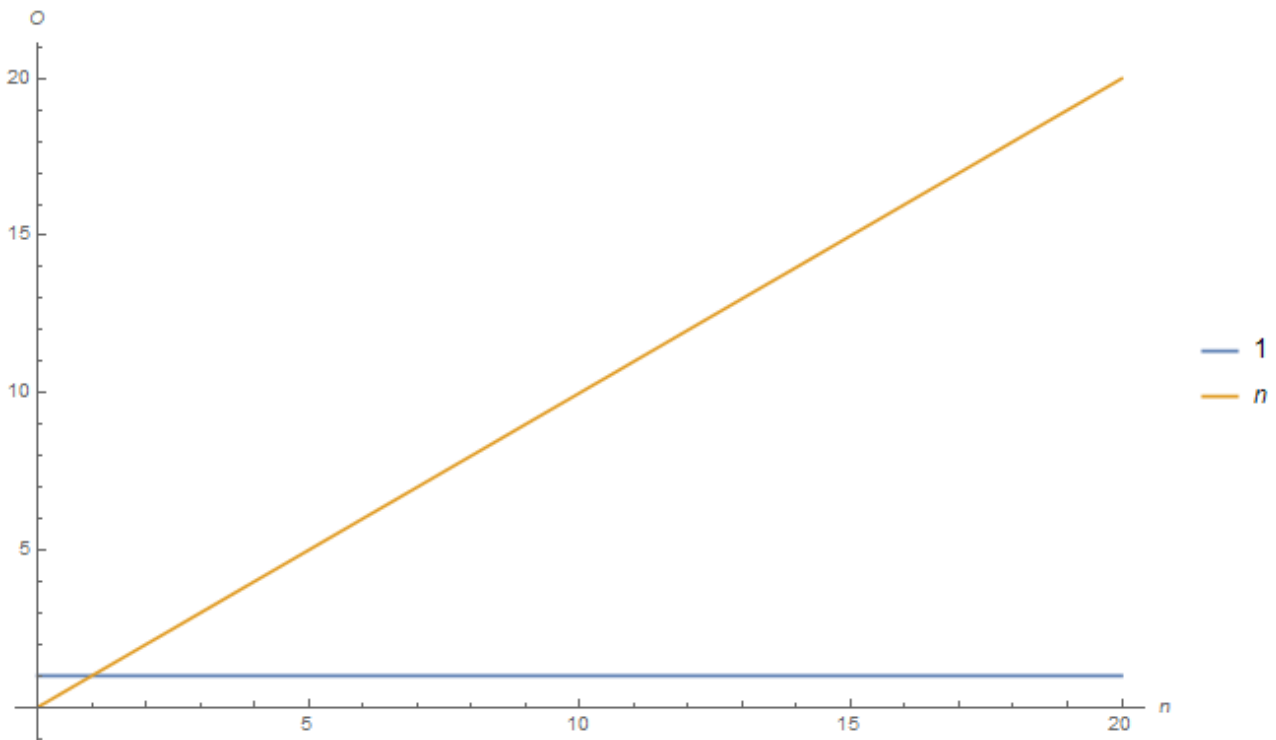


2. Confronte en pares a todos los ordenes en un rango de $0 < n < 1,000$

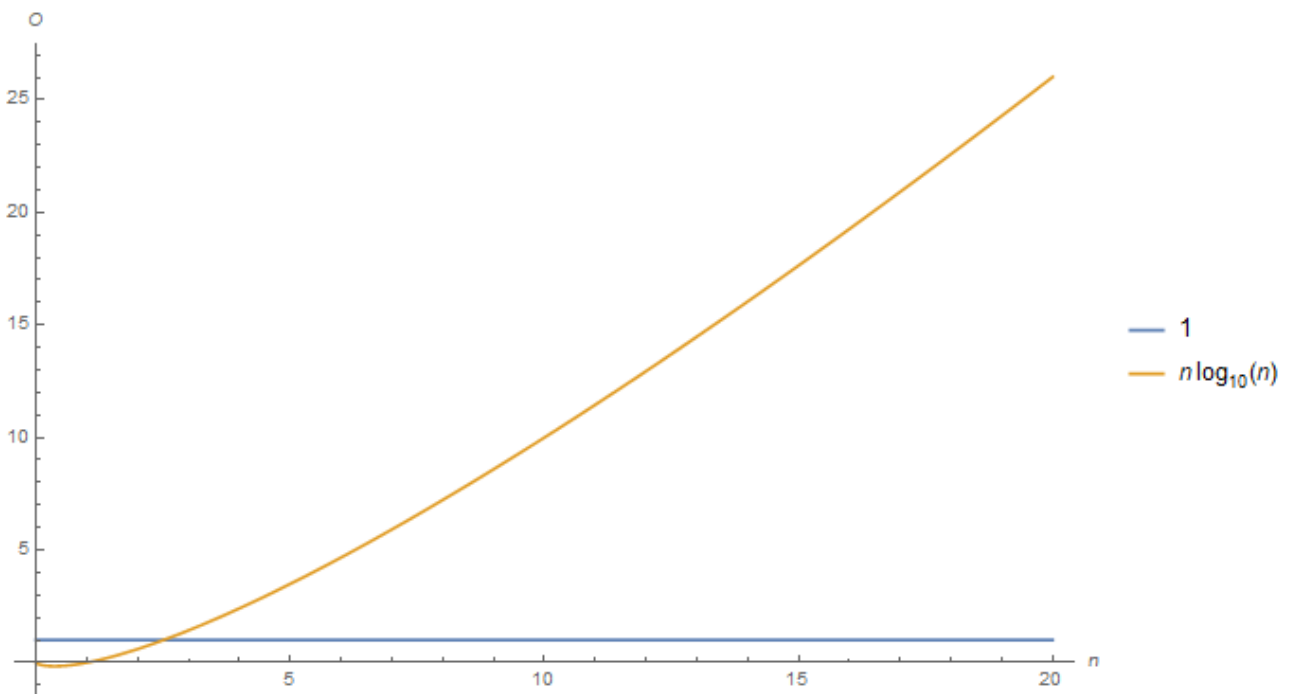
2.1. $O(1)$ vs $O(\log n)$



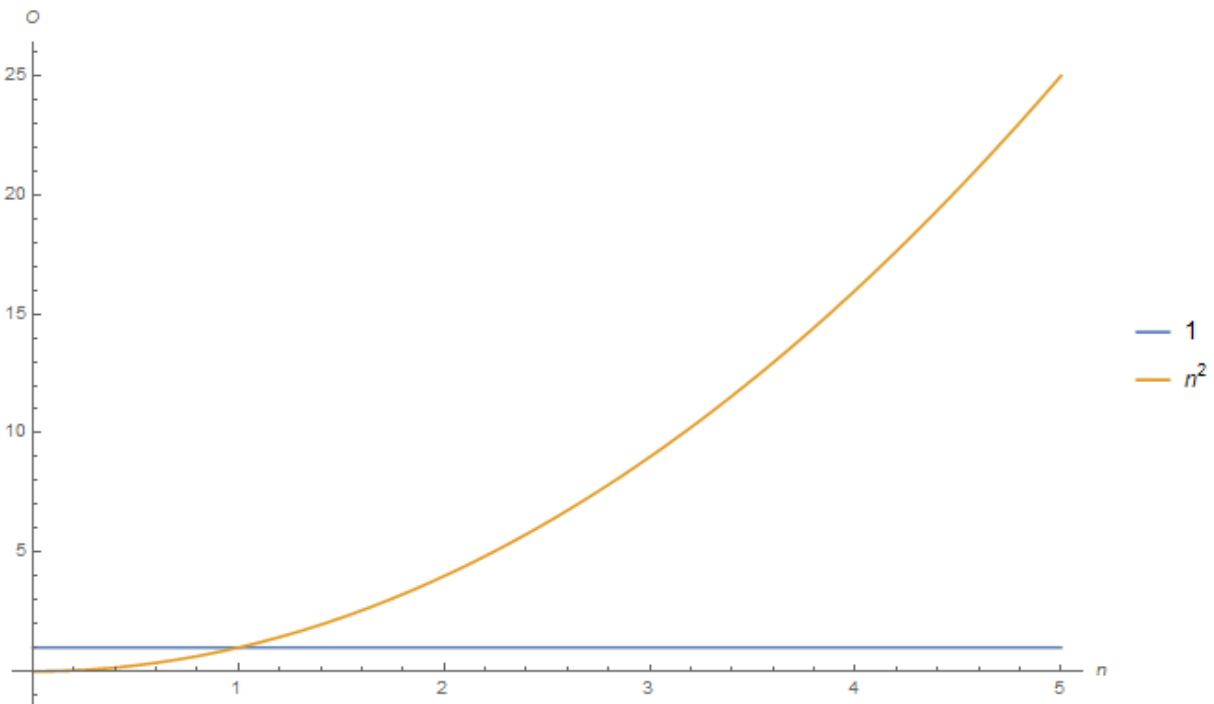
2.2. $O(1)$ vs $O(n)$



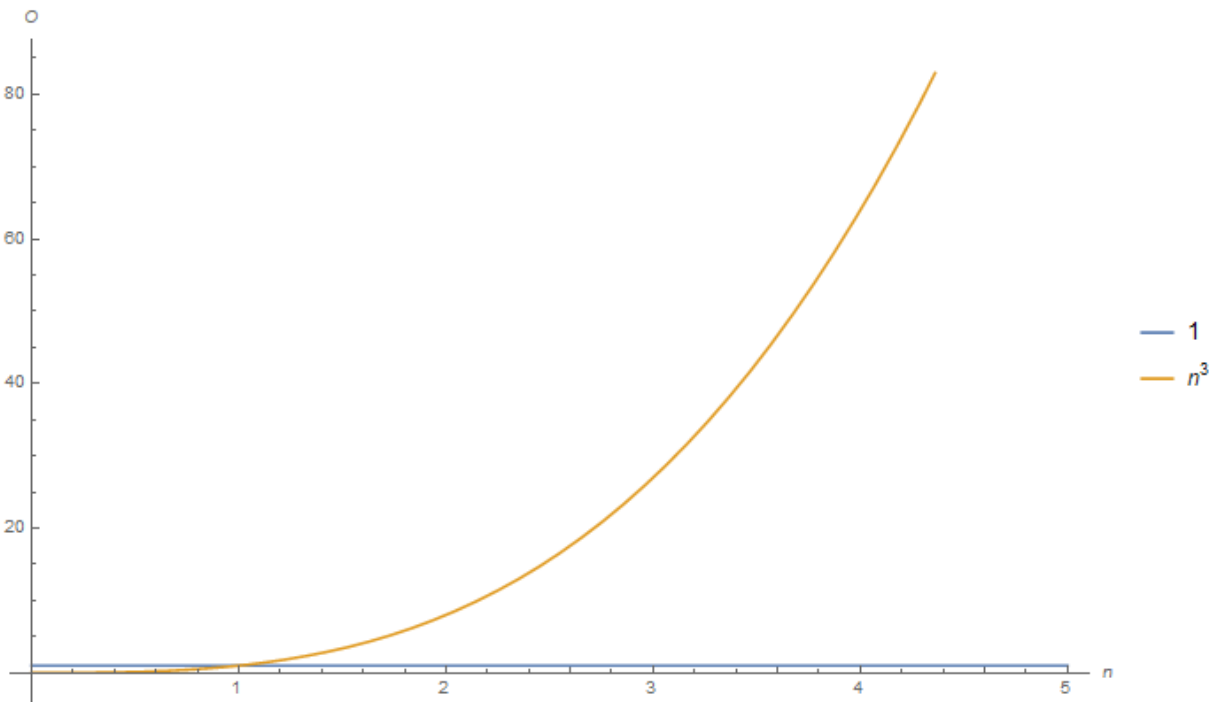
2.3. $O(1)$ vs $O(n \log n)$

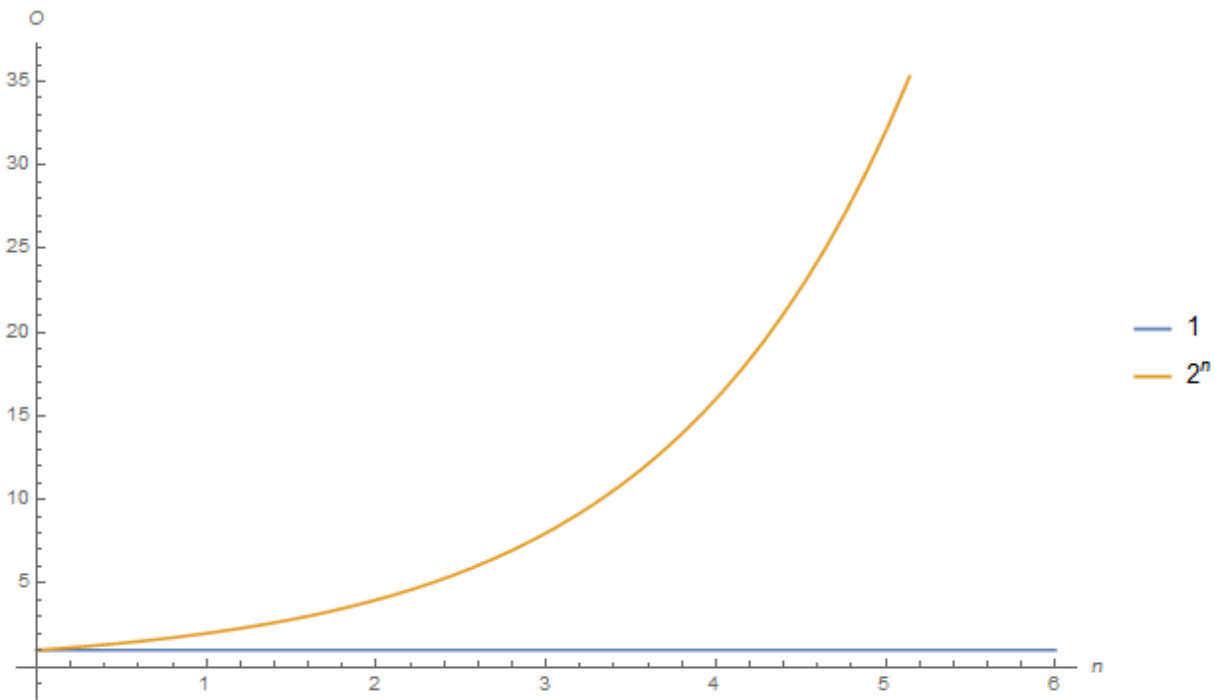
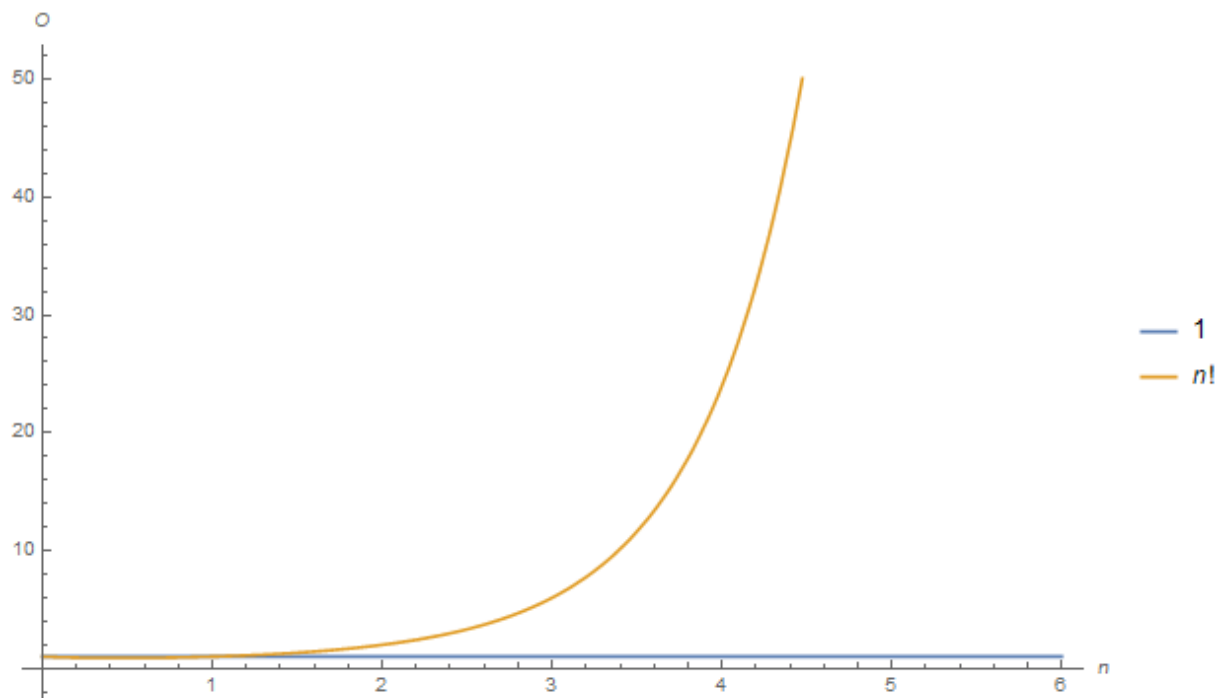


2.4. $O(1)$ vs $O(n^2)$

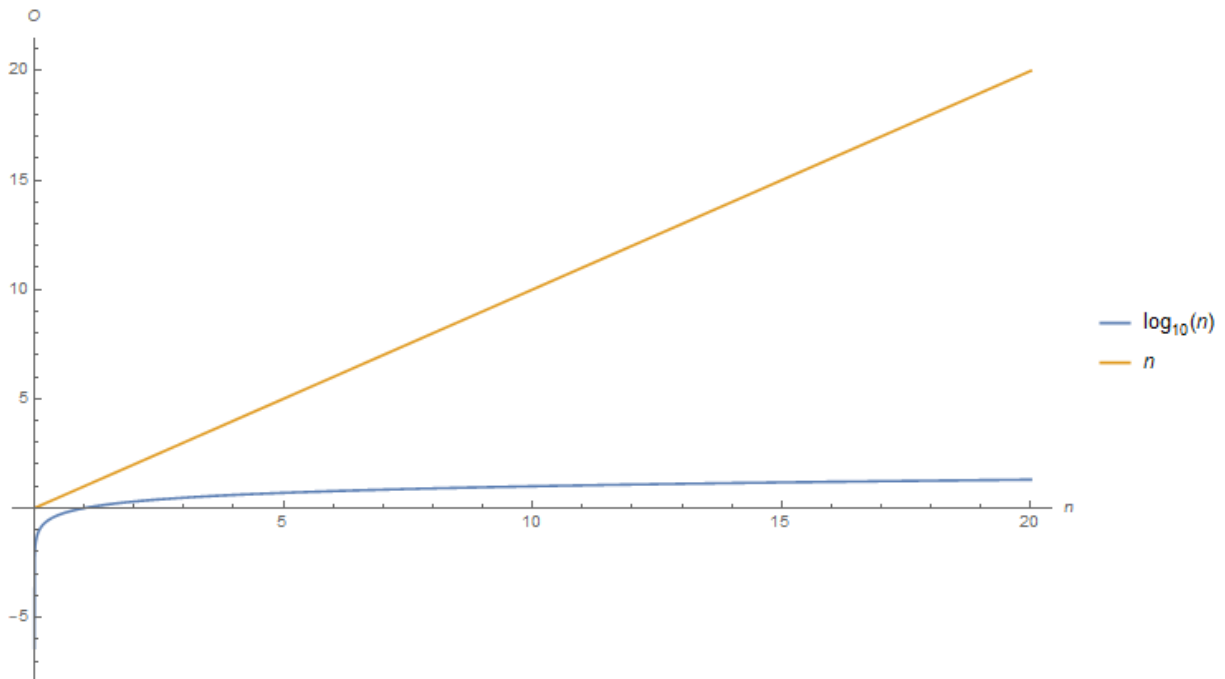


2.5. $O(1)$ vs $O(n^3)$

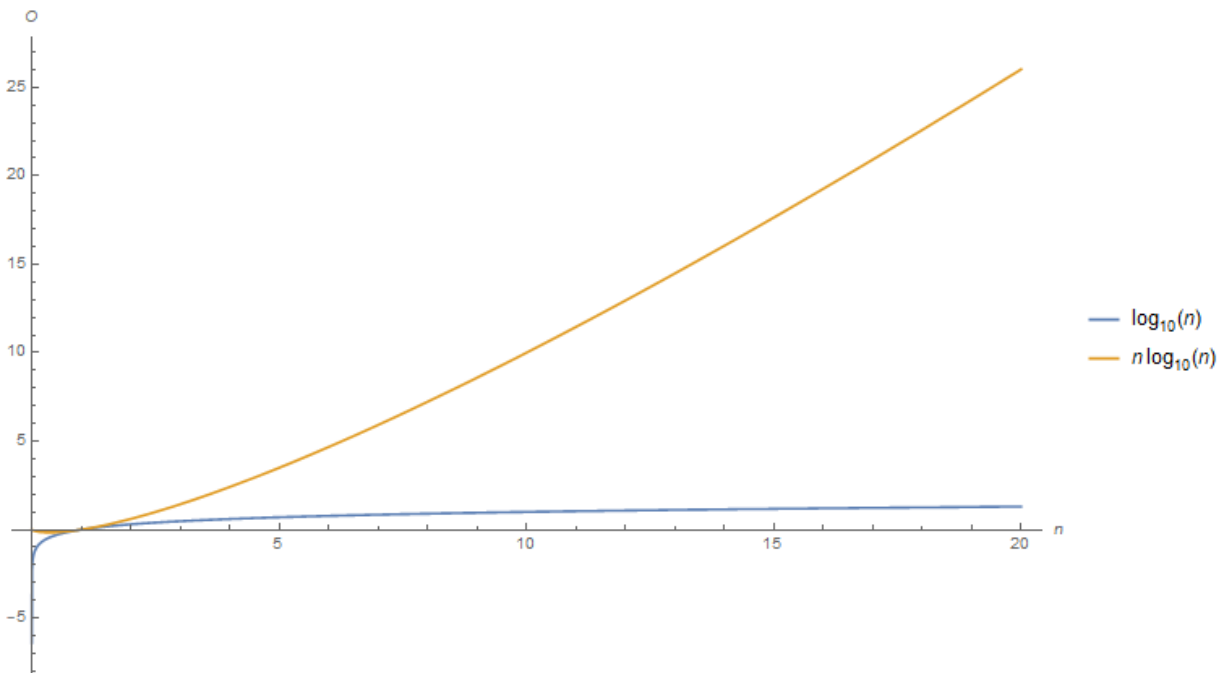


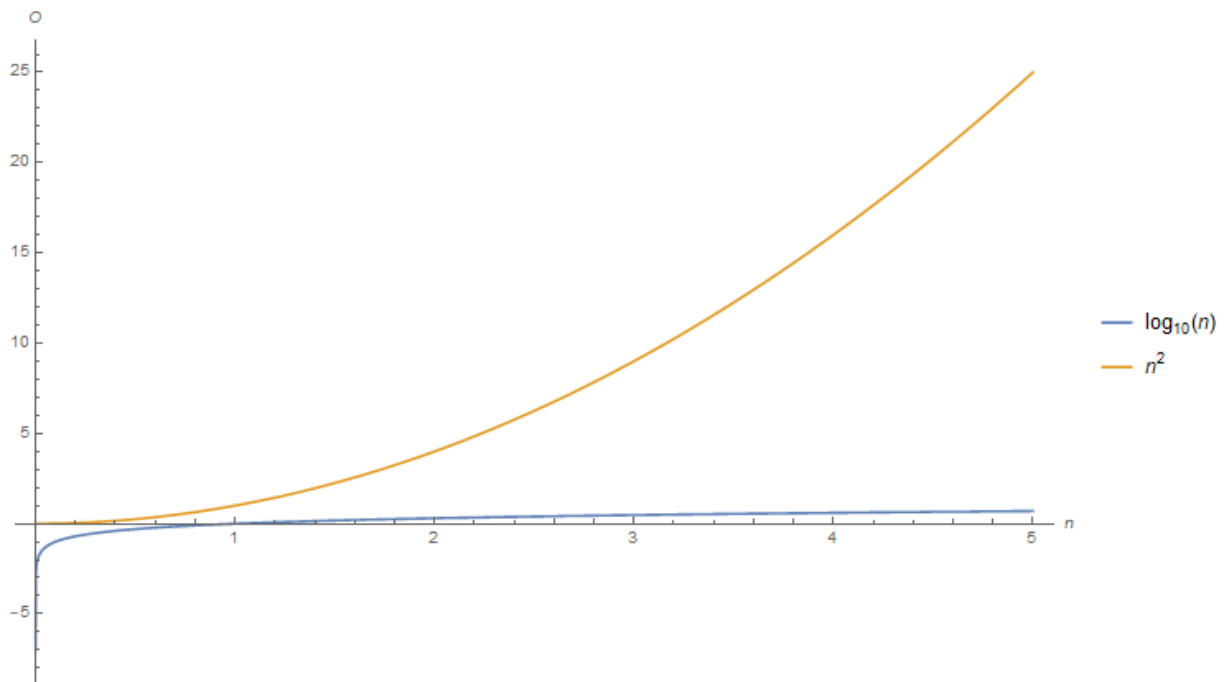
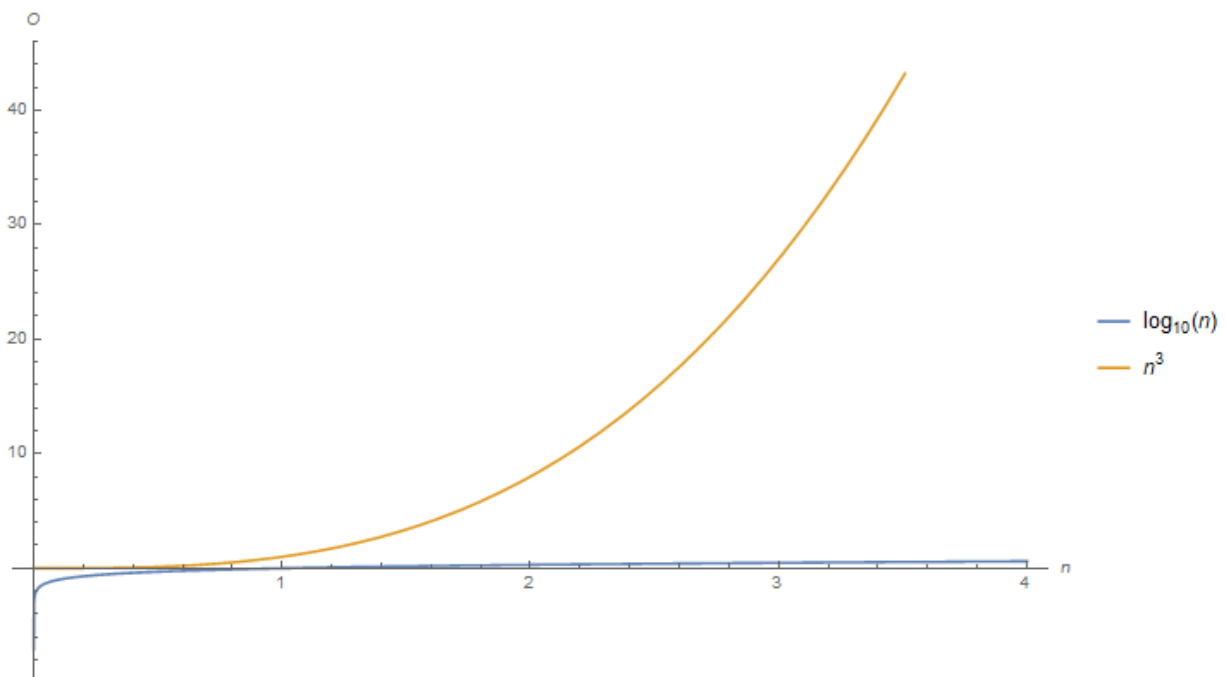
2.6. $O(1)$ vs $O(c^n)$ con $c = 2$ **2.7. $O(1)$ vs $O(n!)$** 

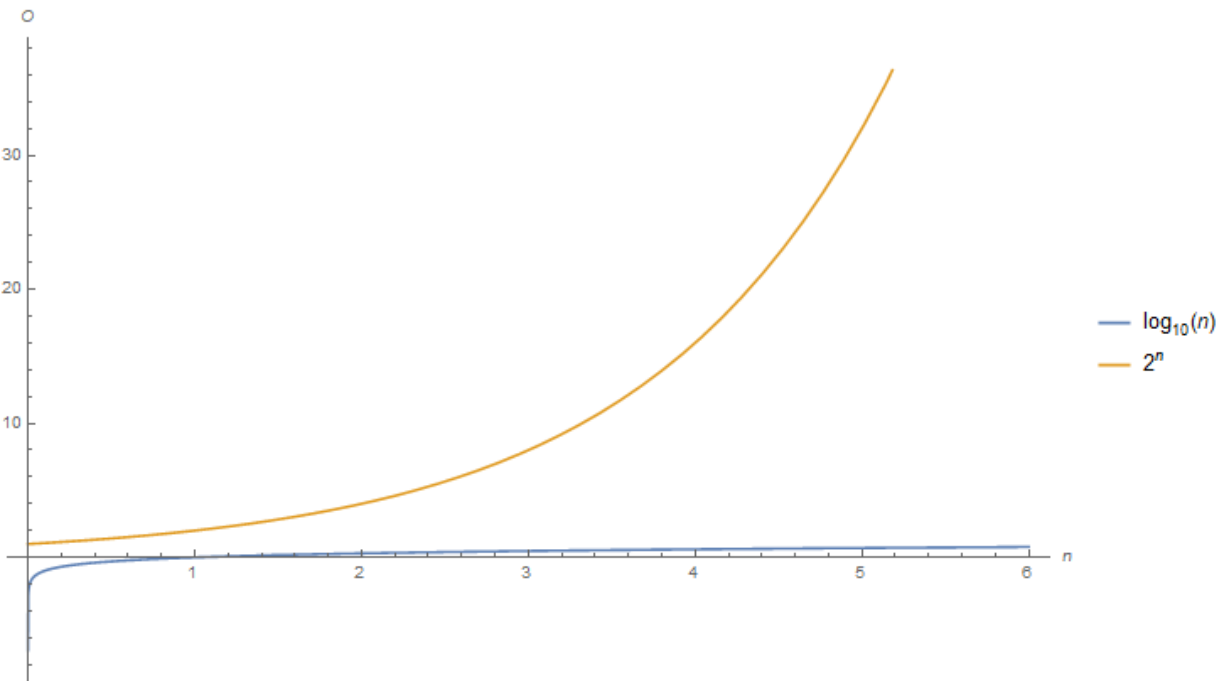
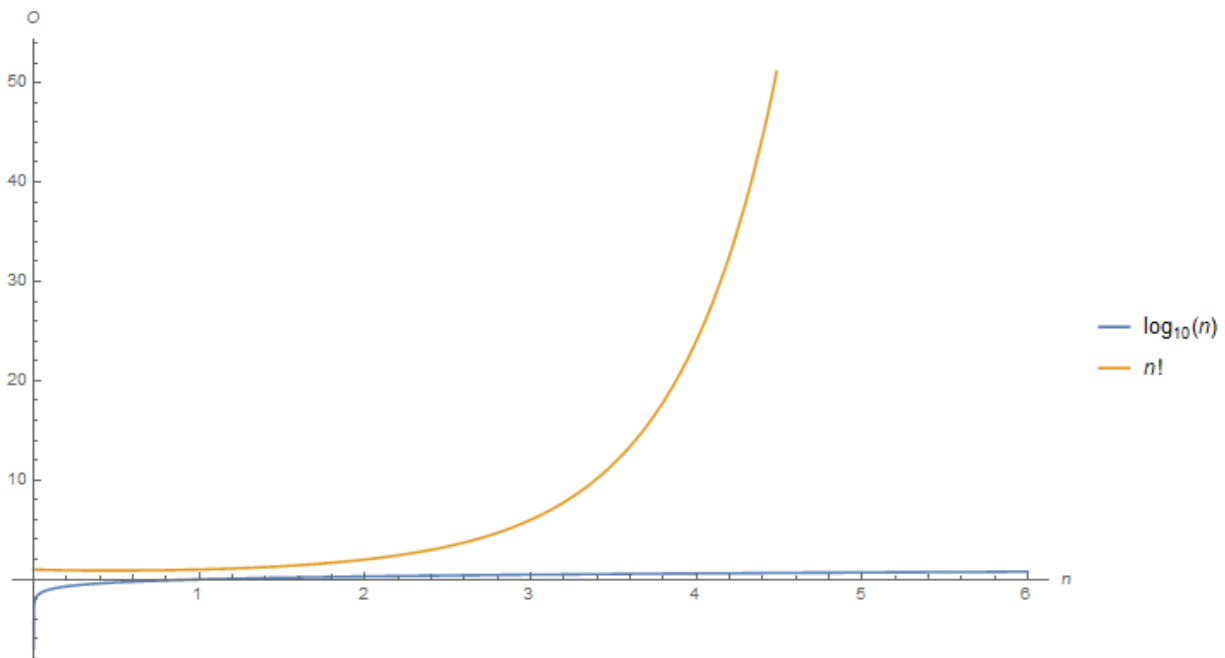
2.8. $O(\log n)$ vs $O(n)$

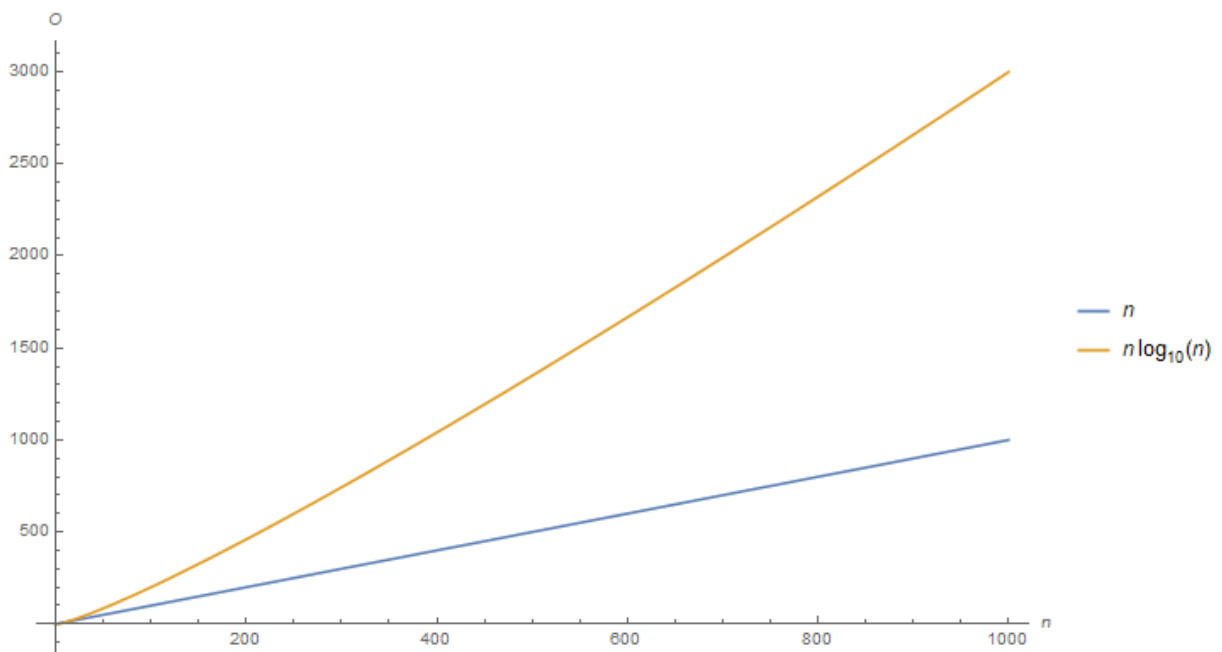
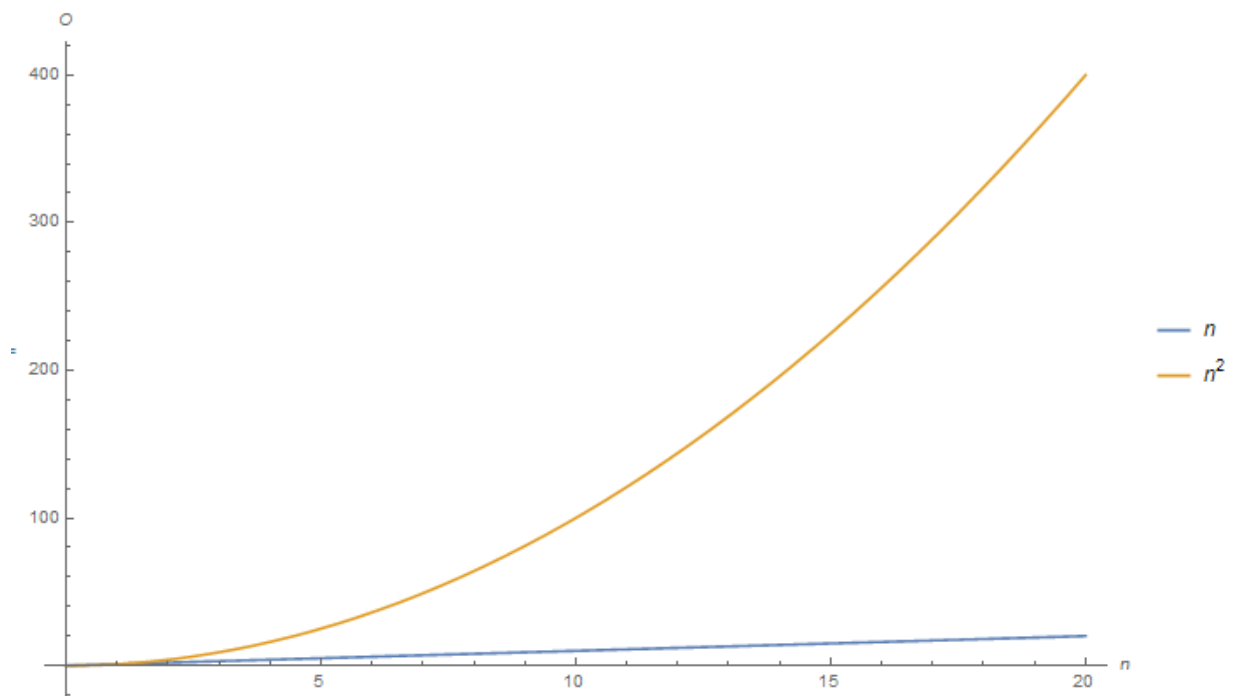


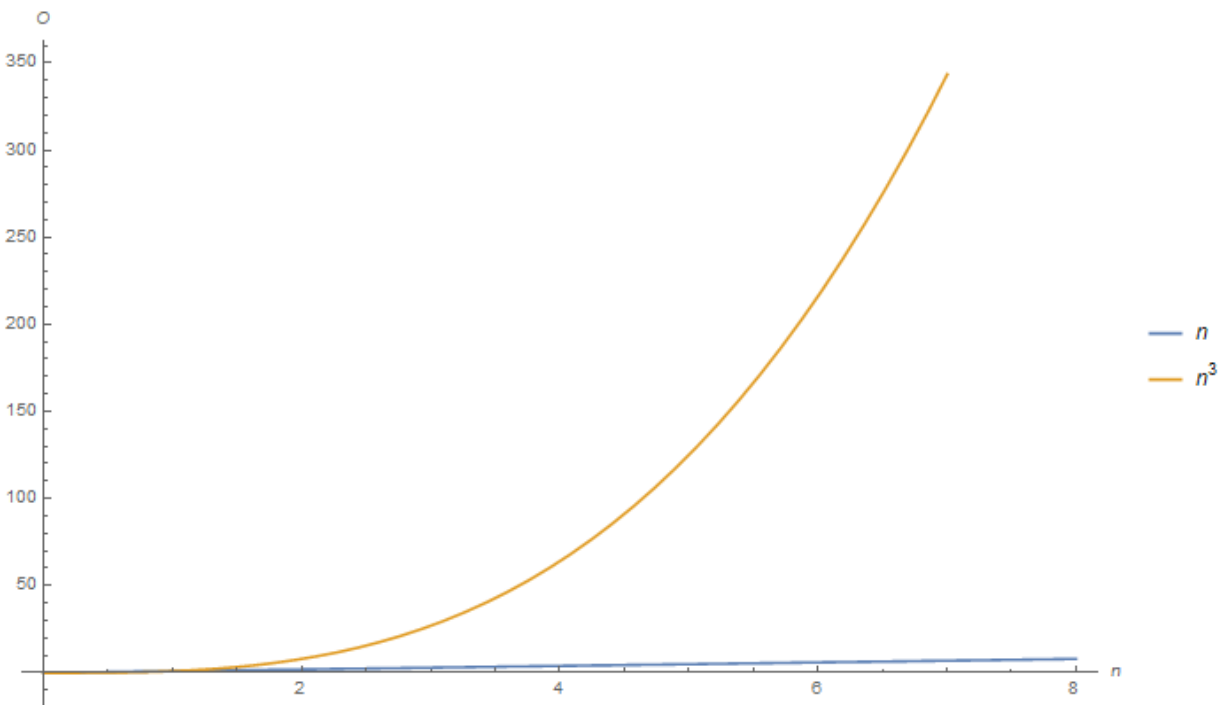
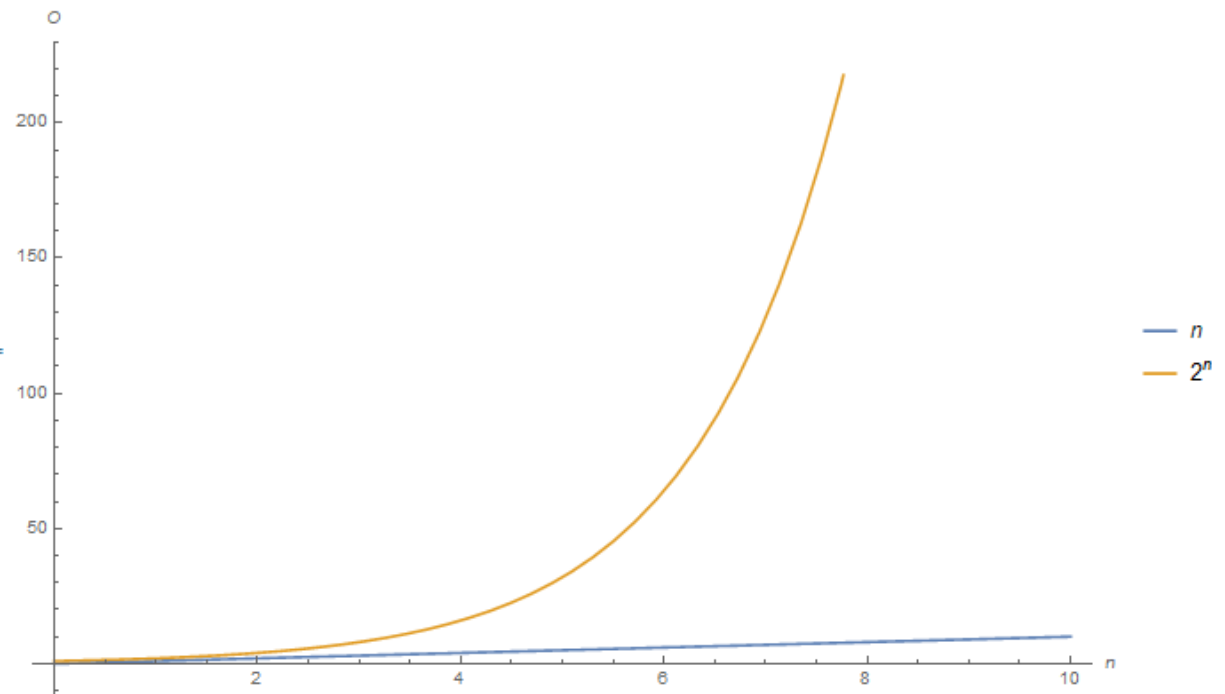
2.9. $O(\log n)$ vs $O(n \log n)$

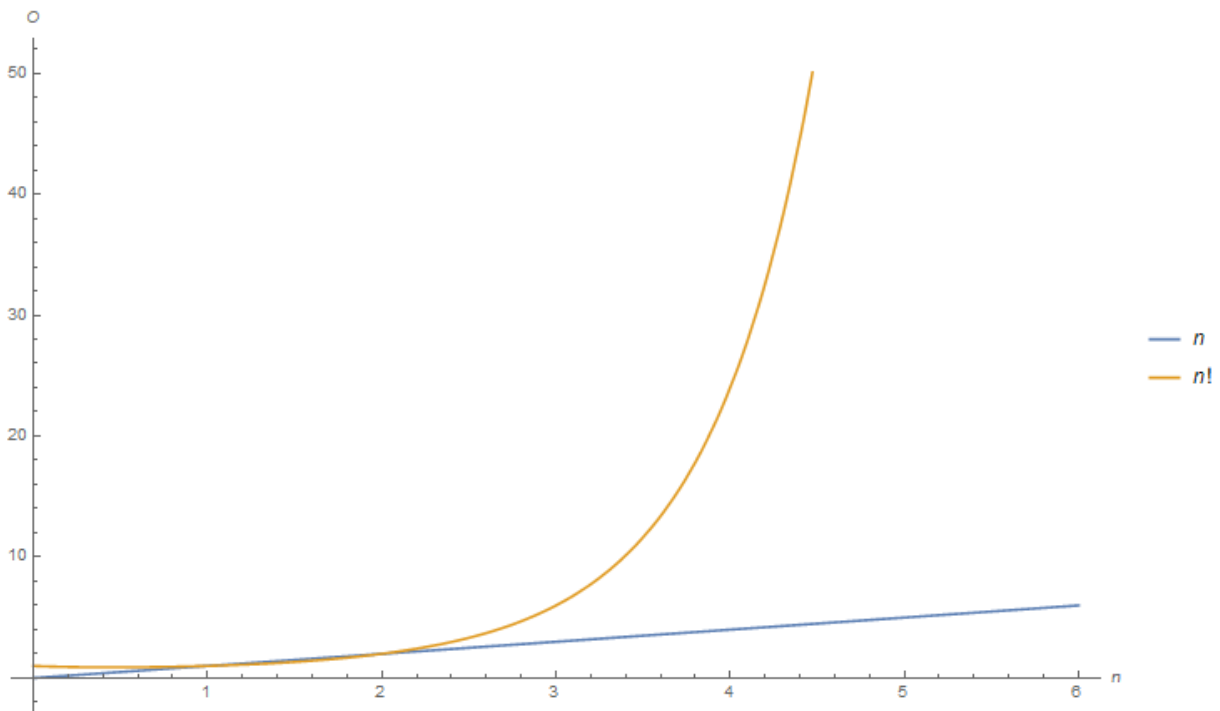
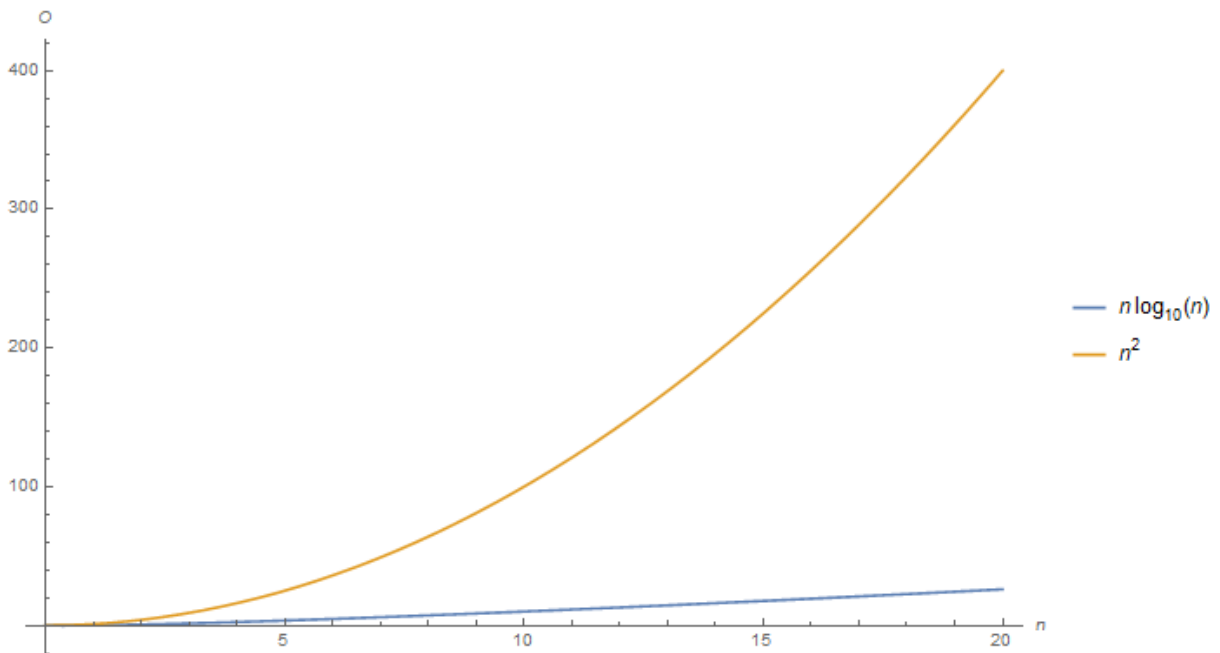


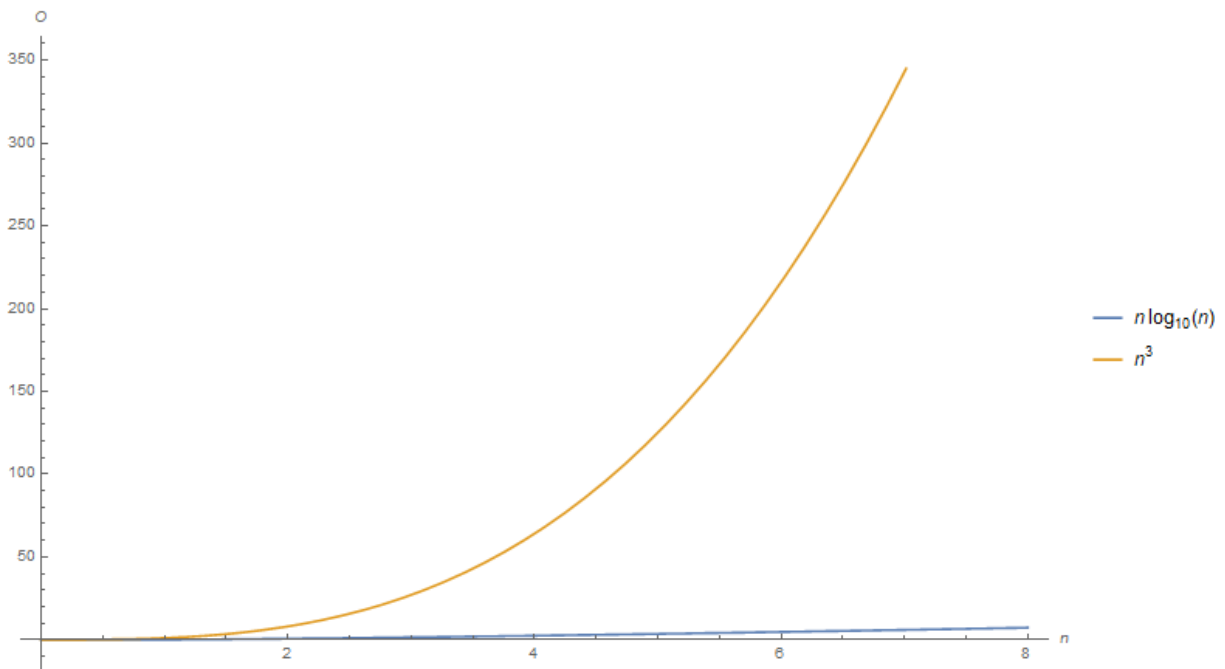
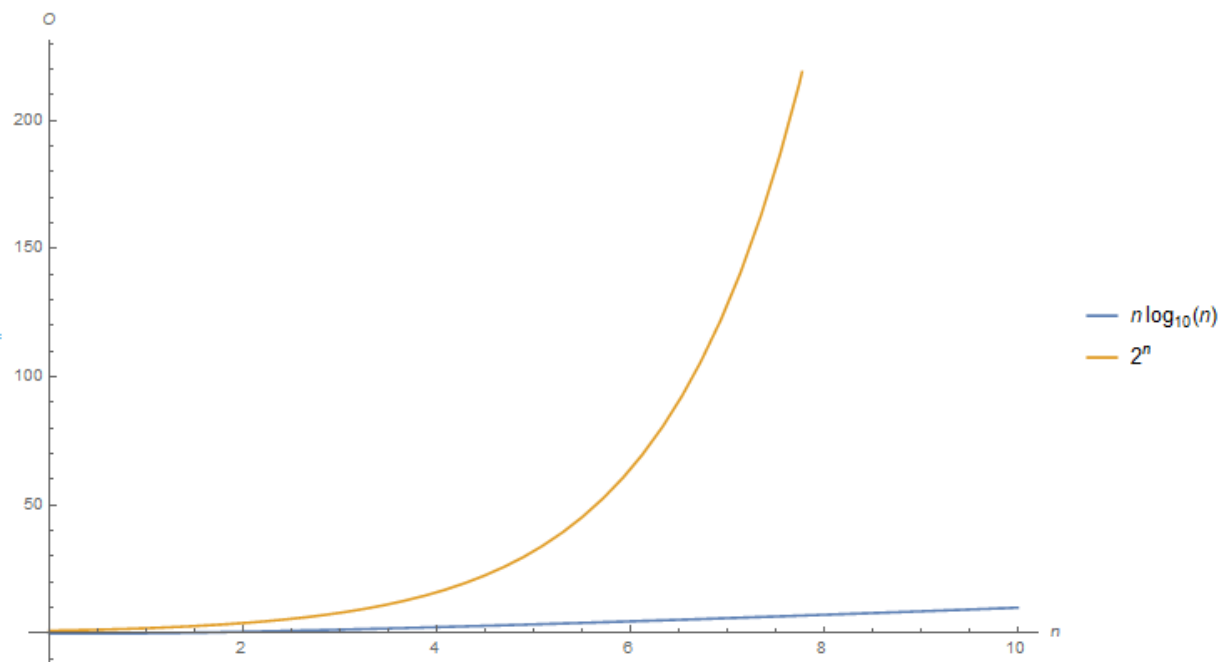
2.10. $O(\log n)$ vs $O(n^2)$ **2.11. $O(\log n)$ vs $O(n^3)$** 

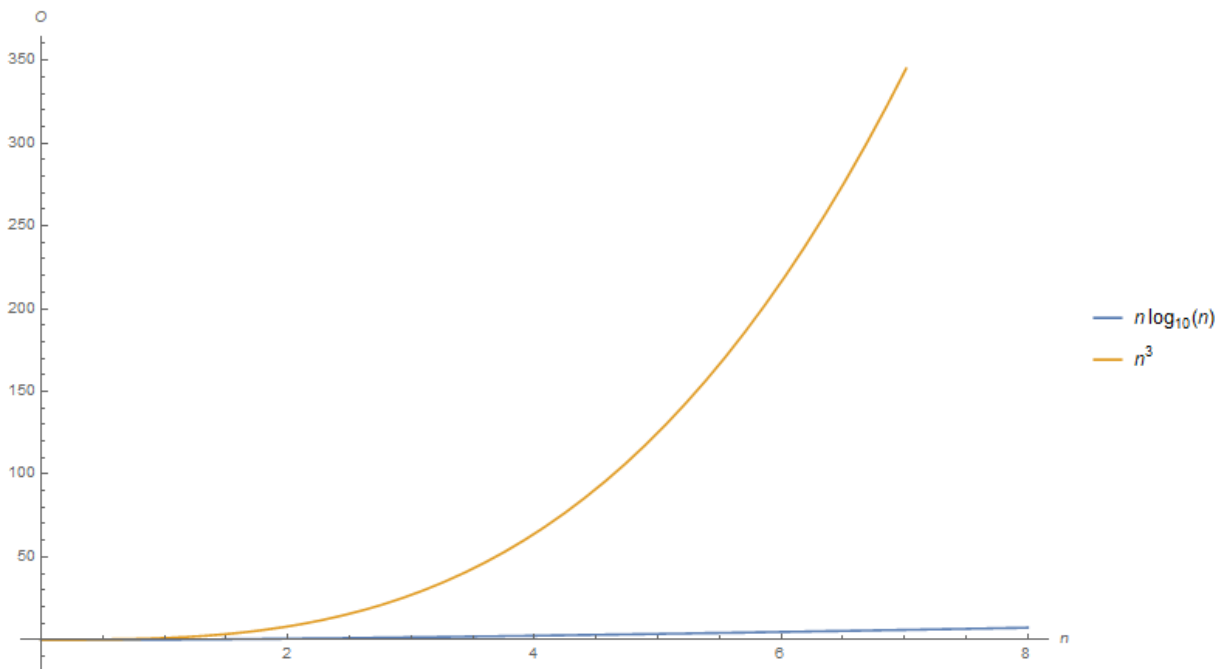
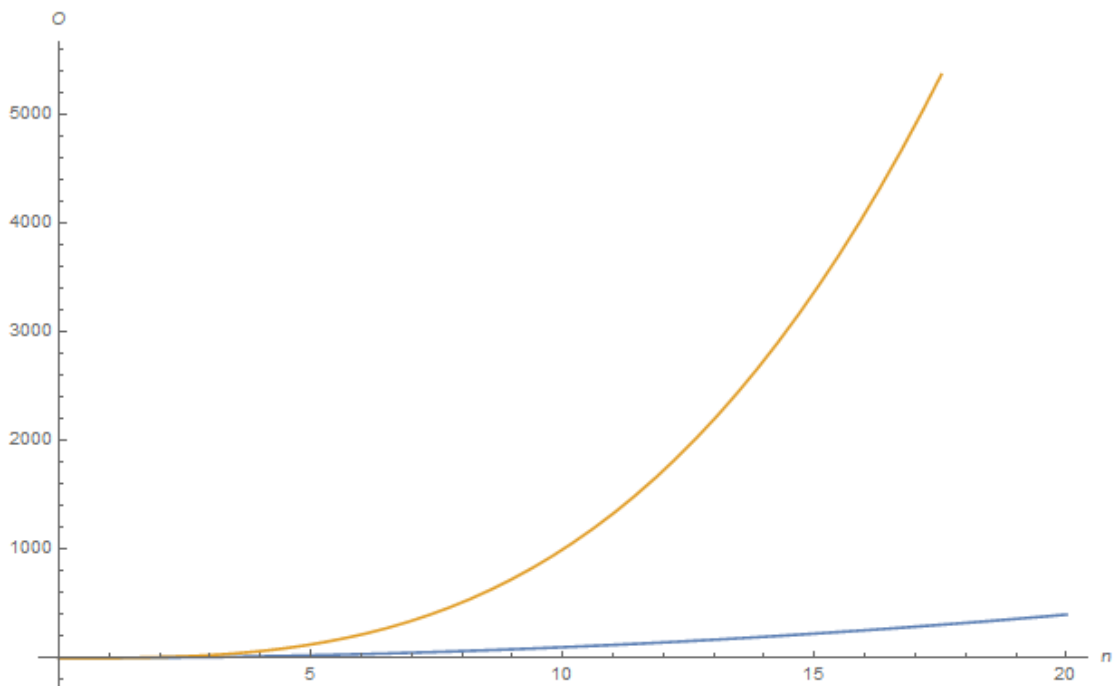
2.12. $O(\log n)$ vs $O(c^n)$ con $c = 2$ **2.13. $O(\log n)$ vs $O(n!)$** 

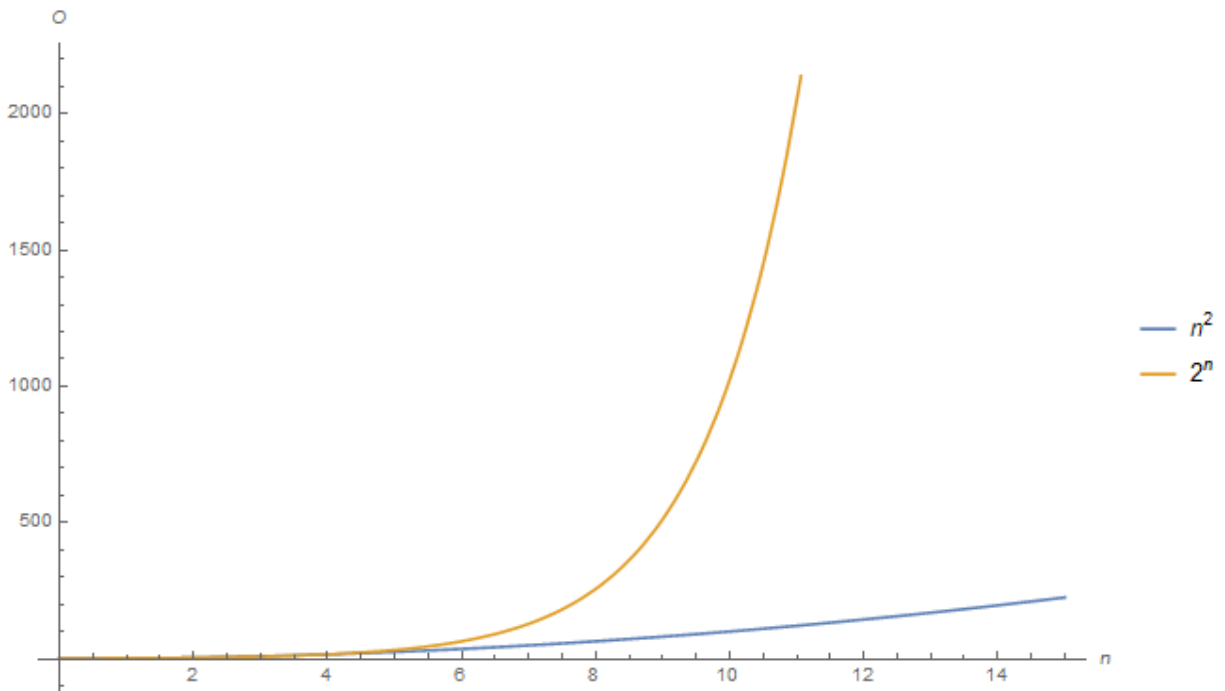
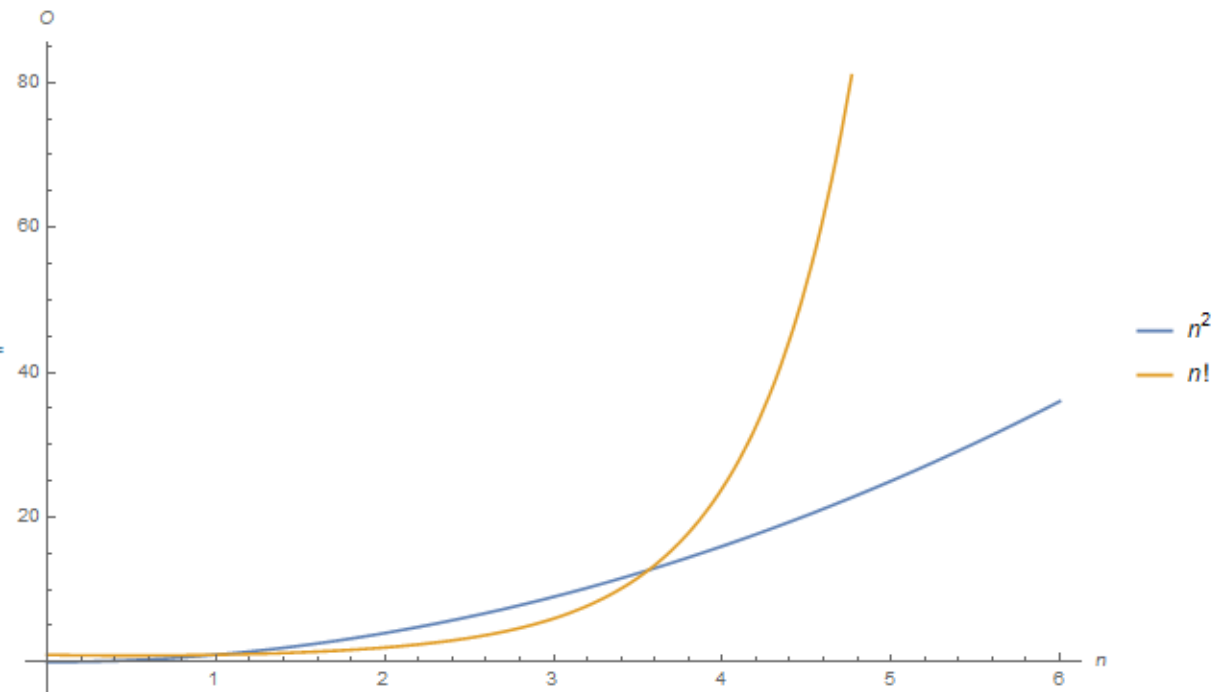
2.14. $O(n)$ vs $O(n \log n)$ **2.15. $O(n)$ vs $O(n^2)$** 

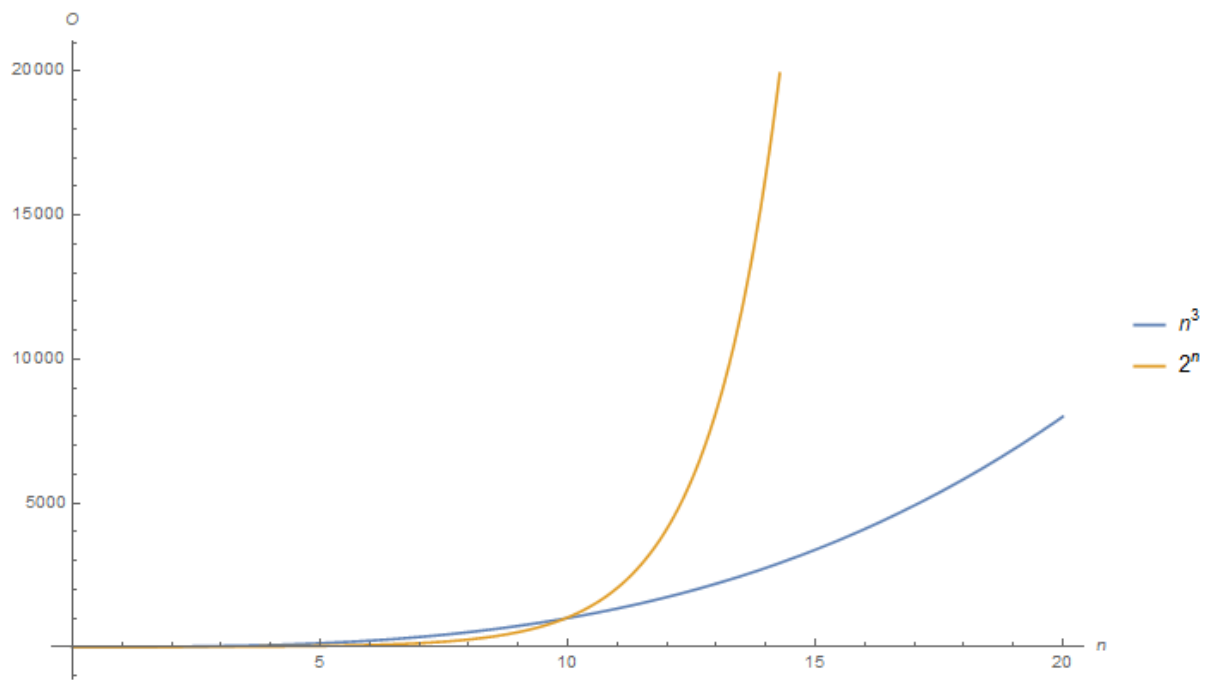
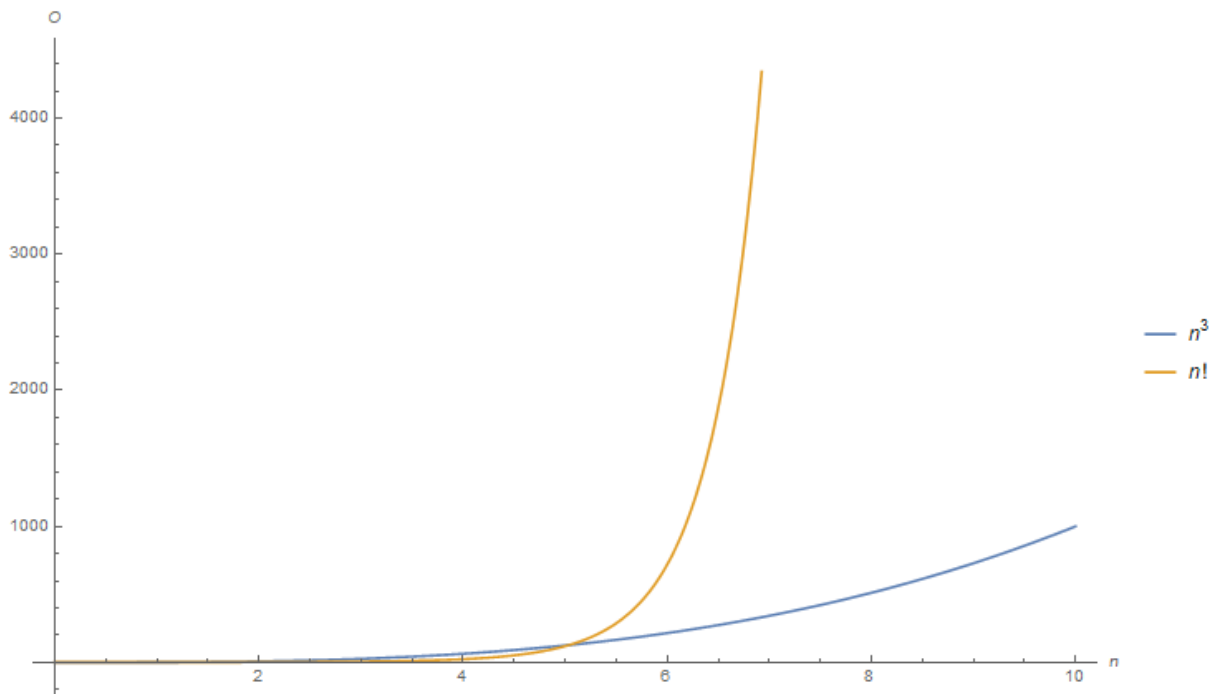
2.16. $O(n)$ vs $O(n^3)$ **2.17. $O(n)$ vs $O(c^n)$ con $c = 2$** 

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 $c = 2$ 