Master Theorem

Additional Practice Questions

For each of the following questions: Identify which case of the Master Theorem each applies to (if any) and find the scaling behaviour. The base case for all questions is $T(1) = 1$.

Questions 1-10 can be found in the accompanying tutorial slides!

- Q11. $T(n) = 3 \cdot T(n/3)$
- Q12. $T(n) = T(n-1) + n$
- Q13. $T(n) = 2 \cdot T(n/2) + 1$
- Q14. $T(n) = 2 \cdot T(n/2) + n^2$
- Q15. $T(n) = 4 \cdot T(n/4)$
- Q16. $T(n) = 3 \cdot T(n/3) + 1$
- Q17. $T(n) = 3 \cdot T(n-1)$
- Q18. $T(n) = 2 \cdot T(n/2) + n \log n$
- Q19. $T(n) = 2 \cdot T(n/2) + 2n$
- Q20. $T(n) = 4 \cdot T(n/2) + 1$
- Q21. $T(n) = 2 \cdot T(n/4)$
- Q22. $T(n) = n \cdot T(n-1)$
- Q23. $T(n) = 4 \cdot T(n/2)$
- Q24. $T(n) = 2 \cdot T(n/4) + n^2$
- Q25. $T(n) = 2 \cdot T(n/2) + n \log n + 3n$
- Q26. $T(n) = 2 \cdot T(n/2) + 2$
- Q27. $T(n) = 3 \cdot T(n/3) + n$
- Q28. $T(n) = 4 \cdot T(n/2) + 2n$
- Q29. $T(n) = 3 \cdot T(n/3) + n^2$