

Master Theorem Worksheet

Use the Master Theorem — if possible — to solve the following recurrences. In some cases, the recurrence can be solved but the Master Theorem cannot be applied.

1. $T(n) = 3T(n/2) + n \log n.$

2. $T(n) = 4T(n/2) + \sqrt{n} + 2$

3. $T(n) = 2^n T(n/3) + n^2$

4. $T(n) = 3T(n/4) + n \log n.$

5. $T(n) = \frac{1}{2}T\left(\frac{2}{3}n\right) + \sqrt{n}.$

6. $T(n) = 2T(n/4) + \sqrt{n} + 2$