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1. $a = 3$, $b = 2$, $f(n) = n^2$, $\log_b^a \approx 1.58$

$n^2 > n^{\log_b^a}$ $\rightarrow$ $T(n) = \theta(n^2)$ case 3

2. $a = 4$, $b = 2$, $f(n) = n^2$, $\log_b^a = 2$

$n^2 = n^2$ $\rightarrow$ $T(n) = \theta(n^2 \log^n)$ case 2

3. $a = 1$, $b = 2$, $f(n) = 2^n$, $\log_b^a = 0$

$2^n > n^0$ $\rightarrow$ $T(n) = \theta(2^n)$ case 3

4. $a \neq$ constant $\rightarrow$ we can't use master method.

5. $a = 16$, $b = 4$, $f(n) = n$, $\log_b^a = 2$

$n < n^2$ $\rightarrow$ $T(n) = \theta(n^2)$ case 1

6. $a = 2$, $b = 2$, $f(n) = n\log^n$, $\log_b^a = 1$

$n < n\log^n$ $\rightarrow$ $T(n) = \theta(n\log^n)$ case 3

7. $a = 2$, $b = 2$, $f(n) = \frac{n}{\log^n}$, $\log_b^a = 1$

$\frac{n}{\log^n}$ ○ n → can't be compared → we can't use master method

$\log^n$ → isn't polynomial

8. $a = 2$, $b = 4$, $f(n) = n^{0.51}$, $\log_b^a = \frac{1}{2}$

$n^{0.51} > n^{0.5} \rightarrow T(n) = \theta(n^{0.51})$ case 3

9. $a = 0.5$, $b = 2$, $f(n) = \frac{1}{n}$, $\log_b^a = -1$

$a < 1$ → master method can't be applyed

10. $a = 16$, $b = 4$, $f(n) = n!$, $\log_b^a = 2$

$n! > n^2 \rightarrow T(n) = \theta(n!)$ case 3

11. $a = 2^{\frac{1}{2}}$, $b = 2$, $f(n) = \log^n$, $\log_b^a = \frac{1}{2}$

$\log n < \sqrt{n} \rightarrow T(n) = \theta(\sqrt{n})$ case 1

12. $a = 3$, $b = 2$, $f(n) = n$, $\log_b^a = 1.58$

$n < n^{1.58} \rightarrow T(n) = \theta(n^{\log_2^3})$ case 1