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e.g., suppose you must access all data $\rightarrow \Omega(n)$ lower bound

(and iterating doesn't work)

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Works for any polynomial $f(n)$

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Do $\Theta(n)$ non-recursive work, and some recursive work ...

$$T(n) = \Theta(n) + T\left(\frac{n}{x}\right) \dots$$

if all of that fails... here's one more idea:

Do $\Theta(n)$ non-recursive work, and some recursive work
in order to eliminate a constant fraction of the data

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e.g. $T\left(\frac{n}{2}\right) + T\left(\frac{n}{4}\right)$ ✓

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Hypothesis: for all $k < n$, $T(k) \leq d \cdot k$

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$$\underline{T(n)} \leq d \cdot \frac{n}{x} + d \cdot \frac{n}{b} + p \cdot n$$

$$= dn \cdot \left(\frac{1}{x} + \frac{1}{b}\right) + p \cdot n$$

$$= dn \cdot \frac{1}{c} + p \cdot n$$

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$$\underline{\leq dn} \quad \text{if } d \geq p \cdot \frac{c}{c-1}$$