

### Additional Divide-and-Conquer Problems

For each of these recursions, either find an asymptotic estimate on  $T(n)$  using the master theorem, or explain why the master theorem does not apply.

(a)  $T(n) = 3T\left(\frac{n}{2}\right) + n$

(b)  $T(n) = 4T\left(\frac{n}{2}\right) + n^3$

(c)  $T(n) = 8T\left(\frac{n}{4}\right) + \frac{n\sqrt{n}}{\lg n}$

(d)  $T(n) = 8T\left(\frac{n}{4}\right) + \frac{n\sqrt{n}}{2}$