

PLEASE SUBMIT YOUR ANSWER TO PROBLEM 1 ON THIS SHEET.

| | $T_1(n)$ | $T_2(n)$ | Is $T_1(n) = O(T_2(n))$? | Is $T_1(n) = \Omega(T_2(n))$? | Is $T_1(n) = \Theta(T_2(n))$? | Which is best? |
|---|-----------------------------|-------------------------------------|---------------------------|--------------------------------|--------------------------------|----------------|
| a | $5\sqrt{n} + \log_2 n + 3$ | $100n / \log_2 n + 25$ | | | | |
| b | $2 \log_{16} n$ | $\log_2 n + 10$ | | | | |
| c | $n^2 + \log_{10} n - 20$ | $20n\sqrt{n} \log_2 n + (\log n)^2$ | | | | |
| d | $5\sqrt{n} + (\ln n)^2$ | $\sqrt{n} \cdot \log_2 n$ | | | | |
| e | $2^{(\log_2 n)} + \sqrt{n}$ | $n^{3/4} \cdot \log_2 n$ | | | | |

Show your work in the space below here.