REPLACE WITH YOUR NAME
REPLACE WITH ID NUMBER

Assignment 1: Question 2

Acknowledgments. REPLACE this text with a full acknowledgement of all sources (people you discussed the question with and/or online/text sources you consulted) used while completing this question. If you completed the question without consulting any sources, say so here explicitly.

Solving recurrences

Solve the following recurrence relations to obtain a closed-form big-Θ expression for $T(n)$. In each question, assume $T(c)$ is bounded by a constant for any small constant c.

(a) $T(n) = 9\,T(\frac{n}{3}) + n^2$

Solution. (ENTER YOUR SOLUTION HERE.)

(b) $T(n) = 4\,T(\frac{n}{4}) + n \log n$

Solution. (ENTER YOUR SOLUTION HERE.)

(c) $T(n) = T(\frac{n}{4}) + T(\frac{3n}{4}) + n$

Solution. (ENTER YOUR SOLUTION HERE.)

(d) $T(n) = \sqrt{n} \cdot T(\sqrt{n}) + n$
Hint. The correct expression is somewhere between $\Omega(n)$ and $O(n \log n)$.

Solution. (ENTER YOUR SOLUTION HERE.)