2.6 As discussed in class, the answer to the first part is $2^{2N-1}$ and the answer to the second part is $O(\log \log D)$.

2.10

(a) $O(N)$

(b) $O(N^2)$

(c) The answer depends on how many digits past the decimal point are computed. Each digit costs $O(N)$.

3.22 Pseudocode:

Create stack
Read in first token
while (token is not "=")
    if (token is a number)
        push the token onto the stack
    else
        if (token is "+")
            pop a
            pop b
            push $a + b$
        if (token is "-")
            pop a
            pop b
            push $a - b$
        if (token is "*")
            pop a
            pop b
            push $a \times b$
        if (token is "/")
            pop a
            pop b
            push $a / b$
read next token
4.1
(a) \( A \).
(b) \( G, H, I, L, M, \) and \( K \).

4.8
(a) \(- \ast \ast a b + c d e\).
(b) \(((a \ast b) \ast (c + d)) - e\).
(c) \(a b \ast c d + \ast e \ast\).

4.27 See Figures 1-4.

Figure 1: 4.27 After accessing 3

4.28 See Figure 5.
6.2 See Figure 6.

6.3 The result of three deleteMins, starting with both of the heaps in Exercise 6.2, is in Figure 7.

6.30 Clearly the claim is true for $k = 1$. Suppose it is true for all values $i = 1, 2, \ldots, k$. A $B_{k+1}$ tree is formed by attaching a $B_k$ tree to the root of a $B_k$ tree. Thus by induction, it contains a $B_0$ through $B_{k-1}$ tree, as well as the newly attached $B_k$ tree, proving the claim.
Figure 4: 4.27 After accessing 5

Figure 5: 4.28

Figure 6: 6.2
Figure 7: 6.3