1. In class we used the definition of gcd as 

\[
\text{gcd}(x, y) = \begin{cases} 
  x & \text{if } x = y, \\
  \text{gcd}(x - y, x) & \text{if } x > y, \\
  \text{gcd}(x, y - x) & \text{otherwise}.
\end{cases}
\]

Prove that the above function correctly computes the gcd of the two parameters as long as the parameters are both greater than zero.

2. Exercise 1.1, 8b, page 9.


5. Exercise 1.3, 4a, b, page 24.

6. Exercise 1.3, 6a, b, page 25.


8. Exercise 1.4, 4a, b, page 38.

9. Exercise 1.4, 10, page 39. Explain the running time of your algorithm in terms of the lengths of the words.