Introduction to Modern Cryptography
Exercise Sheet #2

University of Amsterdam, Master of Logic, 2014
Lecturer: Christian Schaffner
TA: Malvin Gattinger

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Homework

1. Exercise 2.3 from [KL].

2. Exercise 2.4 from [KL]. Hint: Use part (a) in part (c).

3. Exercises 2.7 and 2.8 from [KL].
   You do not need to prove Exercise 2.6. You can just use the result.

4. Exercise 3.1 from [KL].

5. Exercise 3.3 from [KL].

6. Exercise 3.5 from [KL].

7. Exercise 3.6 from [KL]. Prove your answers. Clarification: in (a), the input to G, s0^{|s|}, is
   the concatenation of the string s with the all-zero string of the same bit-length as s.

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Figure 1: During Jimmy Carters presidency, the red phone was a hotline to the Kremlin in Moscow. A U.S. president could pick up the phone and speak directly to Soviet leaders in times of crisis. However, the phone on the picture is a replica and was never used, according to this article, see http://en.wikipedia.org/wiki/Moscow-Washington_hotline.