

MODERN CRYPTOGRAPHY

University of Amsterdam, 2019

TEAM NAME: Your team name

STUDENT NAMES: Your names

Homework set 1

Contents

Question 1

Order the following 5 terms according to their asymptotic growth rates.

$$\exp(n), \log(n), n^{\log(n)}, \log(\exp(n)), \exp(\sqrt{n})$$

Your solution here

Question 5

Your solution here

Question ∞

Here are some macros for you that might be helpful when writing out your solutions to the problems.

- Different fonts: \mathcal{X} , \mathbb{E} , \mathbb{R} , abc
- Encryption protocol: $\Pi^{\text{OTP}} := (\text{Gen}, \text{Enc}, \text{Dec})$. The key generation algorithm Gen picks a uniformly random key $k \xleftarrow{\$} \{0, 1\}^n$ and the encryption algorithm works as follows $\text{Enc}_k(m) := m \oplus k$, where \oplus is the bitwise addition.