

This problem sheet is about difficult computational problems [1].

1. Explain what the set PRIMES is, and the decision problem related to it.
2. Write a Racket function that decides PRIMES.
3. Write a Java function that decides PRIMES.
4. Explain what is meant by SUBSETSUM, and the decision problem related to it.
5. Write a function in Racket that decides SUBSETSUM.
6. Write a function in Java that decides SUBSETSUM.
7. Explain the integer factorisation problem and why it is important in modern cryptography.
8. Explain what is meant by SAT.
9. Explain the 3-SAT decision problem.

References

- [1] Michael Sipser. *Introduction to the Theory of Computation*. International Thomson Publishing, 3rd edition, 1996.