

ALGORITHMIC MATHEMATICS

Practice 1. Preliminary exercises

[https://docs.google.com/presentation/d/1RhSOiFMdv0YDjQwe-AtlTUomrALT9gz6MG8qnK407lk/e dit#slide=id.p](https://docs.google.com/presentation/d/1RhSOiFMdv0YDjQwe-AtlTUomrALT9gz6MG8qnK407lk/edit#slide=id.p)

LECTION 1 + PRACTICE 2. Fundamentals of Computational Complexity Theory

[https://docs.google.com/presentation/d/1JrfNvYCuw3JZjN7TkR96DhmA2Su7Ym-E-br2N2XXod8/e dit#slide=id.p](https://docs.google.com/presentation/d/1JrfNvYCuw3JZjN7TkR96DhmA2Su7Ym-E-br2N2XXod8/edit#slide=id.p)

PRACTICE 3. Representation of numbers

[https://docs.google.com/presentation/d/1Bdc7aOPTEdBOoO1TAyXei1Ex9018ulfNM1BgMuBAGfk/ edit#slide=id.p](https://docs.google.com/presentation/d/1Bdc7aOPTEdBOoO1TAyXei1Ex9018ulfNM1BgMuBAGfk/edit#slide=id.p)

LECTION 2 + PRACTICE 4. Discrete logarithm

[https://docs.google.com/presentation/d/1UitCJplFz-cdqorJxD0TS0oMDyU1COPxCVFbxqYuRig/edi t#slide=id.p](https://docs.google.com/presentation/d/1UitCJplFz-cdqorJxD0TS0oMDyU1COPxCVFbxqYuRig/edit#slide=id.p)

PRACTICE 5. P-ADIC NUMBERS

[https://docs.google.com/presentation/d/1QbXDVEpy1hNuuPw9Vp9_u6Y4yQ-KuJe0655t--yWvJw/e dit#slide=id.p](https://docs.google.com/presentation/d/1QbXDVEpy1hNuuPw9Vp9_u6Y4yQ-KuJe0655t--yWvJw/edit#slide=id.p)

PRACTICE 7. Kroneker's algorithm

[https://docs.google.com/presentation/d/1TZKYWxwZSP5dUHPNAfbKK3FIB-WySf0wnkZWzM1svK M/edit#slide=id.p](https://docs.google.com/presentation/d/1TZKYWxwZSP5dUHPNAfbKK3FIB-WySf0wnkZWzM1svKM/edit#slide=id.p)

PRACTICE 8. LECITION 4. Berlekamp's algorithm

[https://docs.google.com/presentation/d/1bVjSuT4N6Vz4mz070hL8tquTi6WWr_EhlB5aBfP9WsE/e dit#slide=id.p](https://docs.google.com/presentation/d/1bVjSuT4N6Vz4mz070hL8tquTi6WWr_EhlB5aBfP9WsE/edit#slide=id.p)

PRACTICE 9. Extended Euclidean algorithm for polynomials (Preparing to Hensel's lifting algorithm)

[https://docs.google.com/presentation/d/1tBZW_SO9AAj0CzmlyJCTGkNvsMzcSn5tLndL4Bu_f98/e dit#slide=id.p](https://docs.google.com/presentation/d/1tBZW_SO9AAj0CzmlyJCTGkNvsMzcSn5tLndL4Bu_f98/edit#slide=id.p)

PRACTICE 10. Lection 5. Hensel's lifting algorithm

[https://docs.google.com/presentation/d/1L-_4G3PFJQmiM4_HR7pvrJ2QD6N4JPiNimWiQgRYmO A/edit#slide=id.p](https://docs.google.com/presentation/d/1L-_4G3PFJQmiM4_HR7pvrJ2QD6N4JPiNimWiQgRYmOA/edit#slide=id.p)

PRACTICE 11. Ideals and introduction to Grebner bases

[https://docs.google.com/presentation/d/1jZKHPCbjyslaggGsWb-0_sdxvdIkO_-B2FkgiHWEY30/e dit#slide=id.p](https://docs.google.com/presentation/d/1jZKHPCbjyslaggGsWb-0_sdxvdIkO_-B2FkgiHWEY30/edit#slide=id.p)

PRACTICE 12. Lection 6. Gröbner bases

[https://docs.google.com/presentation/d/1wRHs0DHIBV5ei2MVR-bWjxFpJ7kAA5ySwEf5G4NNoUU /edit#slide=id.p](https://docs.google.com/presentation/d/1wRHs0DHIBV5ei2MVR-bWjxFpJ7kAA5ySwEf5G4NNoUU/edit#slide=id.p)

Practice 13. Intermediate testing

[https://docs.google.com/presentation/d/1Q23ECeDKoUmndlNpAWKzgTt8wpupD13LOtXvvATnA4Y /edit#slide=id.p](https://docs.google.com/presentation/d/1Q23ECeDKoUmndlNpAWKzgTt8wpupD13LOtXvvATnA4Y/edit#slide=id.p)

[Practice 14. Lection 7. Fast Fourier transform \(FFT\). Cooley–Tukey FFT algorithm](#)

<https://docs.google.com/presentation/d/1qku9NJIOS1G4eM5Uoj1pugaxwCw6NpdsBYOwRNUH-4g/edit#slide=id.p>

[Practice 14. PREPARING TO EXAM ON ALGORITHMIC MATHEMATICS](#)

https://docs.google.com/document/d/10cqj16gDV7tuho_pLUAS4jYQADfs6vnm5Dw_eEP4xKk/edit?usp=sharing