Elliptic Functions

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11 April 2016

- If there are errors in the problems, please fix *reasonably* and solve them.

- The rule of evaluation is:

$$(\text{your final mark}) = \min\left\{\text{integer part of } \frac{3}{2}(\text{total points you get}), 10\right\}$$

- About twenty problems will be given till the end of the semester.

- This rule is subject to change and the latest rule applies.

- The deadline of **14** – **15**: 25 April 2016.

14. (1 pt.) Check that the Abelian differential ω_1 defined in the lecture (11 April 2016) is holomorphic and nowhere vanishing on the ellipitc curve $\bar{\mathcal{R}}_\varphi$ for a polynomial $\varphi(z)$ of degree 3.

15. (i) (1 pt.) Express the A-period of the Abelian differential $\omega_2 := \sqrt{\dfrac{1 - k^2 z^2}{1 - z^2}}\,dz$ using the complete elliptic integral of the second kind.

(ii)* (2pt) The same for the B-period.

(The A- and B-cycles are those defined in the lecture on 11 April 2016. We assume $0 < k < 1$.)