

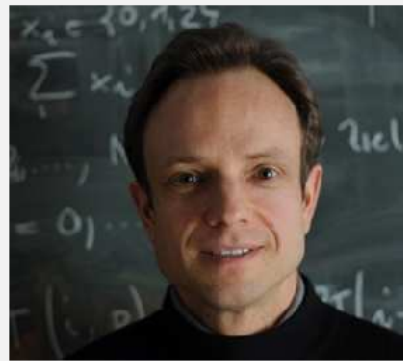
Course Video

Section 7.1: Numerical Quadrature:
Introduction

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(C) Seminar für Angewandte Mathematik, ETH Zürich



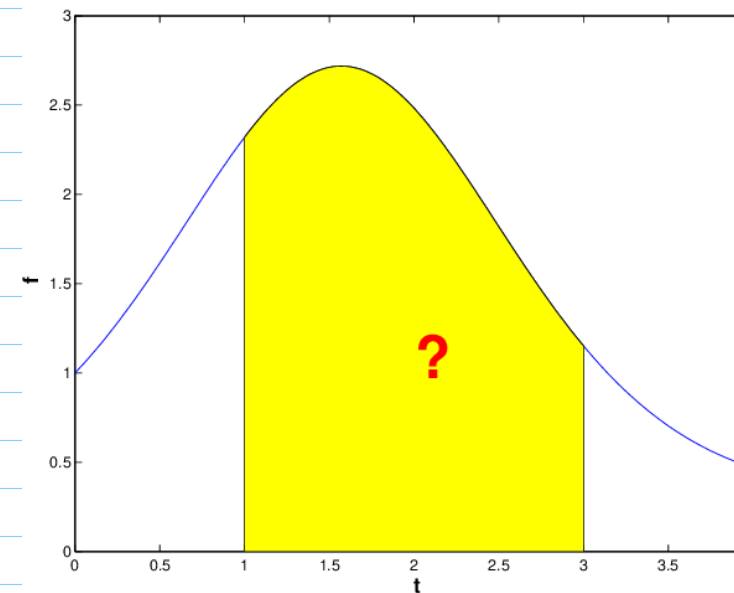
Prerequisites.

- Knowledge of C++
- Calculus: interpretation of finite integrals
- Power formula of circuit theory

Duration: 6 minutes

VII Numerical Quadrature

7.1. Introduction



Task:

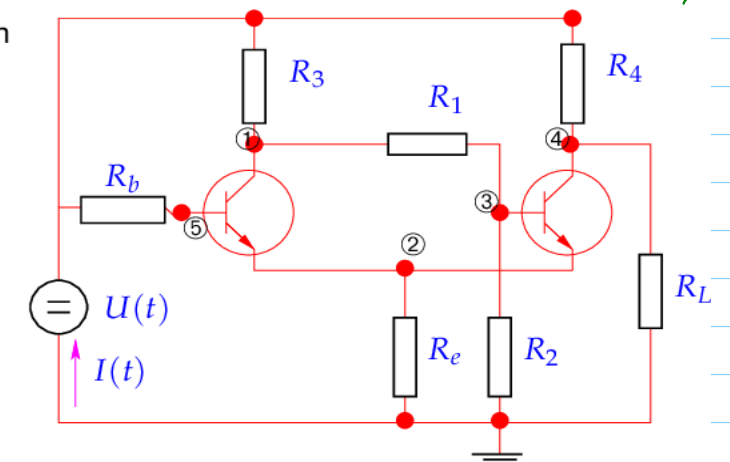
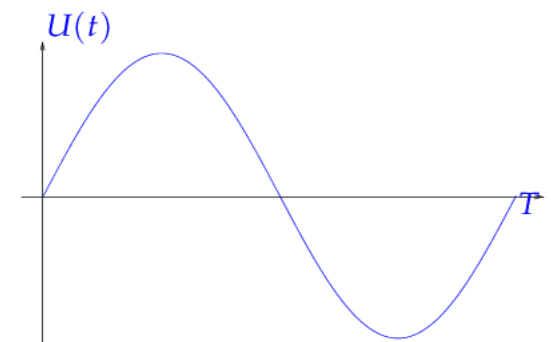
Compute $\int_a^b f(t) dt$

Approximate

given in *procedural form*

(only point evaluations possible)

Ex 7.1.0.4 (Heat production in electrical circuits)

assume time-harmonic periodic excitation with period $T > 0$.

②

$$W_{\text{therm}} = \int_0^T u(t) \uparrow |u(t)| dt$$

not explicit: result of an expensive comp.
for every $u(t)$

▷ Integrand: double $f(\text{double } t)$

