

Übungen zu Mathematische Methoden 2

SS 2022 – 28.3.2022 – 4. Blatt

Aufgabe 19: Berechnen Sie die Flächen A und Schwerpunkte (x_S, y_S) von zumindest einer der folgenden Platten mit homogener Massendichte

$$A = \iint_F dx dy, \quad x_S = \frac{1}{A} \iint_F dx dy x, \quad y_S = \frac{1}{A} \iint_F dx dy y.$$

(a) Platte begrenzt durch $x = 1$, $y = 0$ und $y = x^2$

(b) Halbkreis mit Radius R

Aufgabe 20: Wir betrachten eine Fläche F in der xy -Ebene, die durch die Grenzen $x = 0$, $x = 2$, $y = 0$ und $y = x$ gegeben ist. Fertigen Sie zunächst eine Skizze dieser Fläche an, und berechnen Sie anschließend die Masse M sowie die Schwerpunktskoordinaten x_S und y_S für die Massendichte $\rho(x, y) = 1 + x^2 + y^2$:

$$M = \iint_F dx dy \rho(x, y), \quad x_S = \frac{1}{M} \iint_F dx dy \rho(x, y) x, \quad y_S = \frac{1}{M} \iint_F dx dy \rho(x, y) y.$$

Aufgabe 21: Berechnen Sie die folgenden Doppelintegrale unter Verwendung ebener Polarkoordinaten.

$$(a) \quad \iint_B dx dy \sqrt{x^2 + y^2}, \quad B : x^2 + y^2 \leq 9.$$

$$(b) \quad \iint_B dx dy \frac{y}{\sqrt{x^2 + y^2}}, \quad B : x^2 + y^2 \leq 4 \wedge y \geq 0.$$

Aufgabe 22: Berechnen Sie die Schwerpunktskoordinaten x_S und y_S einer Viertelkreisfläche F mit dem Radius R und der Massendichte $\rho(x, y) = x^2 + y^2$. Hinweis:

$$M = \iint_F dx dy \rho(x, y), \quad x_S = \frac{1}{M} \iint_F dx dy \rho(x, y) x, \quad y_S = \frac{1}{M} \iint_F dx dy \rho(x, y) y.$$

Aufgabe 23: Berechnen Sie die Masse M und das Trägheitsmoment I einer Kugel K mit dem Radius R und homogener Massendichte $\rho(x, y, z) = \rho_0 = \text{const.}$, indem Sie folgende Integrale in Kugelkoordinaten lösen.

$$M = \iiint_K dx dy dz \rho(x, y, z), \quad I = \iiint_K dx dy dz \rho(x, y, z) (x^2 + y^2).$$

Mathematische Methoden Der Zuverlas Volume 2

Richard Courant, David Hilbert



Mathematische Methoden Der Zuverlas Volume 2:

Methoden Der Mathematischen Physik Richard Courant, David Hilbert, 1968

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misconceptions was relatively ... Ch. 19 Multiple Choice - Physics Mar 26, 2020 — Are the resistors shown connected in parallel or in series? Explain. A circuit shows positive terminal of a voltage source connected to one end ... Cooling Load Estimate Sheet Quickie Load Estimate Form. 2, Project Name: 3. 4, Rules of Thumb for Cooling Load Estimates ... Computer Load Total BTU/Hr, From Table 1, 0, = 55, (if not ... ASHRAE Heat & Cooling Load Calculation Sheet Residential Heating and Cooling Load Calculation - 2001 ASHRAE Fundamentals Handbook (Implemented by Dr. Steve Kavanaugh). 2. 3. 4, Temperatures, Note (1) ... Download ASHRAE Heat Load Calculation Excel Sheet XLS Oct 10, 2018 — Download ASHRAE Heat Load Calculation Excel Sheet XLS. Free spreadsheet for HVAC systems heating and cooling load estimation. Manual J Residential Load Calculations (XLS) A heat loss and heat gain estimate is the mandatory first-step in the system design process. This information is used to select heating and cooling equipment. Heating and cooling load calculators Calculators for estimating heating and cooling system capacity requirements, by calculating structure heat losses (heating) and gains (cooling) Download ... HVAC Load Calculator Excel This HVAC load Calculator can be used to determine residential and commercial space energy requirements and prices and costs. To use this calculator, enter ... Cooling Load Calculation Excel Free Downloads - Shareware ... The Aqua-Air Cooling Load Quick-Calc Program will allow you to estimate the BTU/H capacity required to cool a particular area. The only information you need to ... Load Calculation Spreadsheets: Quick Answers Without ... Most HVAC design engineers use an array of sophisticated software calculation and modeling tools for load calculations and energy analysis. ITIL Implementation | IT Process Wiki Apr 3, 2022 — ITIL implementation projects are characterized by a typical course of action, independent of the size of the company and its core business. ITIL Implementation: Roadmap, Scenarios, Mistakes Sep 11, 2023 — ITIL Implementation is all about making gradual, long-term changes. The process of implementation becomes easier if there is an ITIL roadmap ... Plan for a successful ITIL implementation Feb 24, 2020 — ITIL implementation requires in-house training and education to properly prepare IT staff for the upcoming process changes. Open communication ... Plan for a successful ITIL implementation Jun 30, 2022 — Implementing ITIL involves reframing the way an organization works and involves changes within its people, processes, and technology. Not only ... How to implement ITIL How to implement ITIL · 1) Getting started · 2) Service Definition · 3) Introducing ITIL roles and owners · 4) Gap analysis · 5) Planning of new processes · 6) ... How to Implement an ITIL Process in 9 Easy Steps Aug 22, 2023 — A complete ITIL process implementation guide. Discover best practices, challenges, and gain a deeper understanding of this framework. ITIL IMPLEMENTATION AND PROCESS GUIDE The Information Technology Infrastructure Library (ITIL) is a set of concepts and practices for Information Technology Services. Management (ITSM) ... 7 Simple Steps to Implement ITIL in your Organization May 24, 2023 — 1. Building Capability, Understand ITIL and go for Foundation Certification: If you want to implement ITIL methodology in your organization or ... Building a Successful ITIL Implementation Strategy The first crucial step in building a successful ITIL implementation strategy is to take a

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