

Visualizations with JSXGraph in MUMIE

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Platform MUMIE

- E-Learning Platform designed for support in teaching Mathematics
- Online courses (OER):
OMB+ (in English, German, French, Chinese), HM4MINT.NRW
- Pool of refereed online exercises; searchable by tags, topic, ...
- Integration in Moodle, ILIAS, studIP via plugin
- Web-based authoring tool *Webmiau* (*LaTeX-based syntax for authors*)

OMB Online Mathematik Brückenkurs Plus ORCA.nrw

Course Forum User account Logged in as: amaurischat Logout

Overview Options

IA Elementary Calculus: Sets and Numbers

IB Elementary Calculus: Proportionality, Percentage

II Equations in One Unknown

III Inequalities in One Variable

IV Linear Systems of Equations

V Geometry

VI Elementary Functions

VII Differential Calculus

VIII Integral Calculus

IX 2D Coordinate System

X Vector Geometry

Certificate and Additional Modules

Status

Started: 2014-11-04 11:10
Performance overview (pdf)
Certificate: download here

XI Complex Numbers

XII Logic and Sets

XIII Stochastics

Overview Article Exercises Training Quiz

Inequalities in One Variable

- Linear Inequalities
- Quadratic Inequalities
- Absolute Values and Fractions in Inequalities

Final Exam

Exercises

See how it is done

Training

Learning by doing

Quiz

Review of content

Content

- 1.1 Calculating with the Inequality Signs
- 1.2 Solving Linear Inequalities Numerically
- 1.3 Graphical Representation of Linear and Quadratic Terms
- 1.4 Graphical Solution of Linear Inequalities

If you think you've already mastered the content of this section, you can proceed to the exercises, training and quiz.

Learning Goals

- To learn how to graphically represent linear and quadratic terms as well as the absolute value of linear terms.
- To be able to use elementary operations on inequalities and solve linear inequalities.
- To be able to graphically solve linear equations.

Inequalities appear in practice when limiting values aren't allowed to be exceeded or undershot (pollution levels, costs, data transfer rates, etc.). Inequalities are characterized by the inequality symbols $<$, $>$, \leq , and \geq that were introduced in Section IA 2.1. The examples dealt with in Chapter II on Equations in One Unknown, had solution

Solve the following linear inequality "for x ",
i.e. transform it into an equivalent one of the form $x < 99$ or $x \geq 88$ etc.

In the left input field enter the comparison sign ($<$, $>$, \leq or \geq) and in the right a number (as a whole number or reduced fraction), so that it is a correct statement.

(In the left input field enter the comparison signs $<$ and $>$ directly, and for \leq write \leq and for \geq write \geq (without spaces).)

$$\frac{17x}{3} + \frac{55}{2} < \frac{26x}{3} + 5 \quad \Leftrightarrow \quad x \quad ? \quad ? .$$

State the solution set \mathbb{L} of the inequality.
(Enter ∞ as "infinity" or "infy", and the brackets of the interval can be changed by clicking on them.)

$\mathbb{L} = (? , ?) \quad \square \quad \square \quad .$

Save

Problem Pool Browser

Search for Name

Language: Deutsch

Topic: Analysis I

Objective:

- Abfrage von Wissen
- Abfrage von Verständnis
- Üben
- Erkunden eines Sachverhalts, Mustererkennung
- Erwerb von Routine
- Mathematisch korrektes formulieren
- Textaufgabe, Anwendungsbeispiel

Sort by: Name (A-Z)

Abbildungen (ja/nein) und Wertemenge

Abbildungen, Definitionsbereich, Zielbereich und Wertemenge

Absolutbetrag von Termen

Addition und Multiplikation von reellen Funktionen

Anwenden der Potenzgesetze. Auswahl richtiger Antworten

Anwendung der Potenzgesetze Ja-Nein-Fragen

Anwendung der Potenzgesetze, Potenz-Gleichungen lösen

Anwendung grundlegender Rechenregeln

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Integration in Moodle/ILIAS

ILIAS E-LEARNING FH AACHEN

Magazin > Dozenten > K-M > Maurischat, Dr. Andreas > Test-Kurs

Magazin Test-Kurs

Inhalt Info Einstellungen Mitglieder Lernfortschritt Metadaten Export Rechte Voransicht als Mitglied aktivieren >

[Zeigen](#) [Verwalten](#) [Sortierung](#) [Seite gestalten](#)

Dies ist ein Test-Kurs: Bearbeiten Sie auch den [Mumie-Task aus d](#)

Noch ein Link zum [Online-Trainingsraum MGI](#) →.

Inhalt

- [Absolutbetrag von Termen](#)
Status: Offline
- [fragenpool](#)
Status: Offline
- [Lernsequenz Rechte testen](#)
- [weitere Tasks](#)
- [\[Kapitel Training\] Differentialrechnung I](#)
Status: Offline

Organisation

- Kategoriellink
- Sitzung
- Kurslink
- Gruppenlink
- Ordner
- Objekteblock
- Gruppe
- Buchungspool
- Lernsequenz

Kommunikation

- Forum

Zusammenarbeit

- Wiki
- Etherpad

Inhalt

- Datei
- Webfeed
- Weblink
- Mediacast
- Lernmodul ILIAS
- Lernmodul HTML
- Lernmodul SCORM
- Glossar
- Medienpool
- Blog
- Datensammlung
- Literaturliste
- Inhaltsseite
- Interaktives Video

Externer Inhalt

- sciebo-Freigabe
- MumieTask

Test & Übungen

- Übung
- Test
- Fragenpool für Tests
- Individuelle Bewertung

Feedback & Evaluation

- Umfrage
- Fragenpool für Umfragen
- Abstimmung
- LiveVoting

Vorlagen

- Portfoliovorlage

Neues Objekt hinzufügen ▾

APPLIED SCIENCES

Learning with MUMIE

- Large toolbox for online exercises with powerful corrector
- Interactive visualizations synchronized with text (formerly applet-based, now with JSXGraph)
- Graphical exercises (by combining the previous two bullet points)
- Exercises for coding Python, Java, or Octave

Interactive Visualizations

- Example: Approximations for small angles
- Example: Curvature of graphs of functions

Graphical Questions

- Example: Exponentialfunction
- Example: Eigenvectors

Thank you for your attention!

Questions to: contact@integral-learning.de

or directly to me via

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