Trois modules, calculs et diagrammes 1

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En passant la souris sur une vignette, le titre de l'image apparaît.

2 Fichier(s)

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Présentation

TitreTrois modules, calculs et diagrammes 1
Date188x
Sujet

- chaînes
- divisibilité
- modules
- Modulgesetz
- notation2
- trois modules

CoteCod. Ms. Dedekind X 11-1, p. 19.
Format1 f. ; 2 p.
LangueAllemand

Description & Analyse

DescriptionRecto : liste d'égalités pour 3 modules a, b, c. PGCD, PPCM, divisibilité et chaînes.
Verso : étude de certaines chaînes et tentative de représentation par des diagrammes similaires à ceux utilisés aujourd'hui pour les treillis.
Mode(s) d'écriture

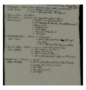
- Calculs phase 2
- Diagrammes

Auteurꞏes de la descriptionHaffner, Emmylou

Relations

Collection Cod. Ms. Dedekind X 11-1

Ce document *utilise la même notation que :*

 Meilleure présentation pour 3 modules a, b, c

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Chaînes de modules

a les mêmes calculs que ce document

Trois modules, tableaux et diagrammes

contient des diagrammes similaires à ce document

Chaînes de modules

est à lire avec ce document

Meilleure présentation pour 3 modules, tableau

est à lire avec ce document

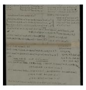

Tableau + symétrie en fonction de a, b, c.

est à lire avec ce document

Afficher la visualisation des relations de la notice.

Mots-clefs

chaînes, divisibilité, modules, Modulgesetz, notation2, trois modules

Notice créée par Emmylou Haffner Notice créée le 29/10/2018 Dernière modification le 21/07/2021

Moduln $\mathfrak{a}, \mathfrak{b}, \mathfrak{c}$

$$\begin{array}{l|l} \left.\begin{array}{l} \mathfrak{a}' = \mathfrak{b}+\mathfrak{c} \\ \mathfrak{b}' = \mathfrak{c}+\mathfrak{a} \\ \mathfrak{c}' = \mathfrak{a}+\mathfrak{b} \end{array}\right\} & \left\{\begin{array}{l} \mathfrak{a}_1 = \mathfrak{b}-\mathfrak{c} \\ \mathfrak{b}_1 = \mathfrak{c}-\mathfrak{a} \\ \mathfrak{c}_1 = \mathfrak{a}-\mathfrak{b} \end{array}\right. \end{array}$$

Dann ist

$$\mathfrak{a}+\mathfrak{a}' = \mathfrak{b}+\mathfrak{b}' = \mathfrak{c}+\mathfrak{c}' = \mathfrak{b}'+\mathfrak{c}' = \mathfrak{c}'+\mathfrak{a}' = \mathfrak{a}'+\mathfrak{b}' = \mathfrak{a}+\mathfrak{b}+\mathfrak{c} = \mathfrak{a}'+\mathfrak{b}'+\mathfrak{c}' = \mathfrak{d}$$

$$\mathfrak{a}-\mathfrak{a}_1 = \mathfrak{b}-\mathfrak{b}_1 = \mathfrak{c}-\mathfrak{c}_1 = \mathfrak{b}_1-\mathfrak{c}_1 = \mathfrak{c}_1-\mathfrak{a}_1 = \mathfrak{a}_1-\mathfrak{b}_1 = \mathfrak{a}-\mathfrak{b}-\mathfrak{c} = \mathfrak{a}_1-\mathfrak{b}_1-\mathfrak{c}_1 = \mathfrak{m}$$

Ferner ist

ferner (— [illegible] $\mathfrak{a} > \mathfrak{b}'-\mathfrak{c}'$, und $\mathfrak{m}' > \mathfrak{a}'$)

$$\left\{\begin{array}{l} \mathfrak{b}'-\mathfrak{c}' = \mathfrak{a} + (\mathfrak{b}-\mathfrak{b}') = \mathfrak{a}+(\mathfrak{c}-\mathfrak{c}') = \mathfrak{a}+\mathfrak{m}' \\ \mathfrak{c}'-\mathfrak{a}' = \mathfrak{b} + (\mathfrak{c}-\mathfrak{c}') = \mathfrak{b}+(\mathfrak{a}-\mathfrak{a}') = \mathfrak{b}+\mathfrak{m}' \\ \mathfrak{a}'-\mathfrak{b}' = \mathfrak{c} + (\mathfrak{a}-\mathfrak{a}') = \mathfrak{c}+(\mathfrak{b}-\mathfrak{b}') = \mathfrak{c}+\mathfrak{m}' \end{array}\right. \left\{\begin{array}{l} \mathfrak{a}-\mathfrak{a}' = \mathfrak{a}-\mathfrak{m}' \\ \mathfrak{b}-\mathfrak{b}' = \mathfrak{b}-\mathfrak{m}' \\ \mathfrak{c}-\mathfrak{c}' = \mathfrak{c}-\mathfrak{m}' \end{array}\right.$$

$$\mathfrak{m}' = \mathfrak{a}'-\mathfrak{b}'-\mathfrak{c}'$$

und

$$\left\{\begin{array}{l} \mathfrak{b}_1+\mathfrak{c}_1 = \mathfrak{a}-(\mathfrak{b}+\mathfrak{b}_1) = \mathfrak{a}-(\mathfrak{c}+\mathfrak{c}_1) = \mathfrak{a}-\mathfrak{d}_1 \\ \mathfrak{c}_1+\mathfrak{a}_1 = \mathfrak{b}-(\mathfrak{c}+\mathfrak{c}_1) = \mathfrak{b}-(\mathfrak{a}+\mathfrak{a}_1) = \mathfrak{b}-\mathfrak{d}_1 \\ \mathfrak{a}_1+\mathfrak{b}_1 = \mathfrak{c}-(\mathfrak{a}+\mathfrak{a}_1) = \mathfrak{c}-(\mathfrak{b}+\mathfrak{b}_1) = \mathfrak{c}-\mathfrak{d}_1 \end{array}\right. \left\{\begin{array}{l} \mathfrak{a}+\mathfrak{a}_1 = \mathfrak{a}+\mathfrak{d}_1 \\ \mathfrak{b}+\mathfrak{b}_1 = \mathfrak{b}+\mathfrak{d}_1 \\ \mathfrak{c}+\mathfrak{c}_1 = \mathfrak{c}+\mathfrak{d}_1 \end{array}\right.$$

$$\mathfrak{d}_1 = \mathfrak{a}_1+\mathfrak{b}_1+\mathfrak{c}_1$$

und

$$(\mathfrak{b}-\mathfrak{b}')+(\mathfrak{c}-\mathfrak{c}') = (\mathfrak{c}-\mathfrak{c}')+(\mathfrak{a}-\mathfrak{a}') = (\mathfrak{a}-\mathfrak{a}')+(\mathfrak{b}-\mathfrak{b}') = (\mathfrak{a}-\mathfrak{a}')+(\mathfrak{b}-\mathfrak{b}')+(\mathfrak{c}-\mathfrak{c}') = \mathfrak{a}'-\mathfrak{b}'-\mathfrak{c}' = \mathfrak{m}'$$

$$(\mathfrak{b}+\mathfrak{b}_1)-(\mathfrak{c}+\mathfrak{c}_1) = (\mathfrak{c}+\mathfrak{c}_1)-(\mathfrak{a}+\mathfrak{a}_1) = (\mathfrak{a}+\mathfrak{a}_1)-(\mathfrak{b}+\mathfrak{b}_1) = (\mathfrak{a}+\mathfrak{a}_1)-(\mathfrak{b}+\mathfrak{b}_1)-(\mathfrak{c}+\mathfrak{c}_1) = \mathfrak{a}_1+\mathfrak{b}_1+\mathfrak{c}_1 = \mathfrak{d}_1$$

und

$$\left\{\begin{array}{l} \mathfrak{a}_1 = (\mathfrak{c}_1+\mathfrak{a}_1)-(\mathfrak{a}_1+\mathfrak{b}_1) \\ \mathfrak{b}_1 = (\mathfrak{a}_1+\mathfrak{b}_1)-(\mathfrak{b}_1+\mathfrak{c}_1) \\ \mathfrak{c}_1 = (\mathfrak{b}_1+\mathfrak{c}_1)-(\mathfrak{c}_1+\mathfrak{a}_1) \end{array}\right. \left\{\begin{array}{l} \mathfrak{a}' = (\mathfrak{c}'-\mathfrak{a}')+(\mathfrak{a}'-\mathfrak{b}') \\ \mathfrak{b}' = (\mathfrak{a}'-\mathfrak{b}')+(\mathfrak{b}'-\mathfrak{c}') \\ \mathfrak{c}' = (\mathfrak{b}'-\mathfrak{c}')+(\mathfrak{c}'-\mathfrak{a}') \end{array}\right.$$

Ferner

$$\mathfrak{m} > \mathfrak{d}_1 > \mathfrak{m}' > \mathfrak{d}$$

und

$$\left\{\begin{array}{l} \mathfrak{b}_1+\mathfrak{c}_1 \geqq \mathfrak{a}-\mathfrak{d}_1 > \mathfrak{a}-\mathfrak{m}' > \mathfrak{a} > \mathfrak{a}+\mathfrak{d}_1 > \mathfrak{a}+\mathfrak{m}' \geqq \mathfrak{b}'-\mathfrak{c}' \\ \mathfrak{c}_1+\mathfrak{a}_1 \geqq \mathfrak{b}-\mathfrak{d}_1 > \mathfrak{b}-\mathfrak{m}' > \mathfrak{b} > \mathfrak{b}+\mathfrak{d}_1 > \mathfrak{b}+\mathfrak{m}' \geqq \mathfrak{c}'-\mathfrak{a}' \\ \mathfrak{a}_1+\mathfrak{b}_1 \geqq \mathfrak{c}-\mathfrak{d}_1 > \mathfrak{c}-\mathfrak{m}' > \mathfrak{c} > \mathfrak{c}+\mathfrak{d}_1 > \mathfrak{c}+\mathfrak{m}' \geqq \mathfrak{a}'-\mathfrak{b}' \end{array}\right.$$

$$\begin{array}{l} \mathfrak{a}_3 > \mathfrak{a}'' > \mathfrak{a} > \mathfrak{a}_2 > \mathfrak{a}''' \\ \mathfrak{b}_3 > \mathfrak{b}'' > \mathfrak{b} > \mathfrak{b}_2 > \mathfrak{b}''' \\ \mathfrak{c}_3 > \mathfrak{c}'' > \mathfrak{c} > \mathfrak{c}_2 > \mathfrak{c}''' \end{array}$$

Ferner auch

$$\left\{\begin{array}{l} \mathfrak{a}+\mathfrak{m}' = (\mathfrak{a}+\mathfrak{d}_1)+(\mathfrak{b}-\mathfrak{m}') = (\mathfrak{a}+\mathfrak{d}_1)+(\mathfrak{c}-\mathfrak{m}') \\ \mathfrak{b}+\mathfrak{m}' = (\mathfrak{b}+\mathfrak{d}_1)+(\mathfrak{c}-\mathfrak{m}') = (\mathfrak{b}+\mathfrak{d}_1)+(\mathfrak{a}-\mathfrak{m}') \\ \mathfrak{c}+\mathfrak{m}' = (\mathfrak{c}+\mathfrak{d}_1)+(\mathfrak{a}-\mathfrak{m}') = (\mathfrak{c}+\mathfrak{d}_1)+(\mathfrak{b}-\mathfrak{m}') \end{array}\right.$$

und

$$\left\{\begin{array}{l} \mathfrak{a}-\mathfrak{d}_1 = (\mathfrak{a}-\mathfrak{m}')-(\mathfrak{b}+\mathfrak{d}_1) = (\mathfrak{a}-\mathfrak{m}')-(\mathfrak{c}+\mathfrak{d}_1) \\ \mathfrak{b}-\mathfrak{d}_1 = (\mathfrak{b}-\mathfrak{m}')-(\mathfrak{c}+\mathfrak{d}_1) = (\mathfrak{b}-\mathfrak{m}')-(\mathfrak{a}+\mathfrak{d}_1) \\ \mathfrak{c}-\mathfrak{d}_1 = (\mathfrak{c}-\mathfrak{m}')-(\mathfrak{a}+\mathfrak{d}_1) = (\mathfrak{c}-\mathfrak{m}')-(\mathfrak{b}+\mathfrak{d}_1) \end{array}\right.$$

$$\begin{array}{l} \mathfrak{a}' > \mathfrak{d}, \; \mathfrak{b}' > \mathfrak{d}, \; \mathfrak{c}' > \mathfrak{d} \\ \mathfrak{m} > \mathfrak{a}_1, \; \mathfrak{m} > \mathfrak{b}_1, \; \mathfrak{m} > \mathfrak{c}_1 \\ \mathfrak{a}_3 > \mathfrak{a}'' > \mathfrak{a}'''' > \mathfrak{m}' \\ \mathfrak{b}_3 > \mathfrak{b}'' > \mathfrak{b}'''' > \mathfrak{m}' \\ \mathfrak{c}_3 > \mathfrak{c}'' > \mathfrak{c}'''' > \mathfrak{m}' \\ \mathfrak{d}_1 > \mathfrak{a}_4 > \mathfrak{a}_2 > \mathfrak{a}''' \\ \mathfrak{d}_1 > \mathfrak{b}_4 > \mathfrak{b}_2 > \mathfrak{b}''' \\ \mathfrak{d}_1 > \mathfrak{c}_4 > \mathfrak{c}_2 > \mathfrak{c}''' \end{array}$$

Nun aber noch die Moduln

$$\begin{array}{ll} \mathfrak{a}_1+(\mathfrak{a}-\mathfrak{m}') & \mathfrak{a}'-(\mathfrak{a}+\mathfrak{d}_1) \\ \mathfrak{b}_1+(\mathfrak{b}-\mathfrak{m}') & \mathfrak{b}'-(\mathfrak{b}+\mathfrak{d}_1) \\ \mathfrak{c}_1+(\mathfrak{c}-\mathfrak{m}') & \mathfrak{c}'-(\mathfrak{c}+\mathfrak{d}_1) \end{array}$$

$r < \left\{\begin{matrix} a' \\ b' \\ r' \end{matrix}\right\} < m'$, $\quad r_1 < \left\{\begin{matrix} a_2 \\ b_2 \\ r_2 \end{matrix}\right\}$, $\quad m' < \left\{\begin{matrix} a'' \\ b'' \\ r'' \end{matrix}\right\}$, $\quad \left\{\begin{matrix} a''' \\ b''' \\ r''' \end{matrix}\right\} < m'$, $\quad \left\{\begin{matrix} a'''' \\ b'''' \\ r'''' \end{matrix}\right\} < \vartheta_1$, $\quad m < \left\{\begin{matrix} a_4 \\ b_4 \\ r_4 \end{matrix}\right\}$

$a' < \{\ \} < a_1 < m$	$a < a''$	$a_2 < a$	$\left\{\begin{matrix} a_2 \\ b_2 \\ r_2 \end{matrix}\right\} < \vartheta_1$	$a''' < a$	$a < a_3$	$a'''' < a''$	$a_2 < a_4$
$b' < \{\ \} < b_1 < m$	$b < b''$	$b_2 < b$		$b''' < b$	$b < b_3$	$b'''' < b''$	$b_2 < b_4$
$r' < \{\ \} < r_1 < m$	$r < r''$	$r_2 < r$		$r''' < r$	$r < r_3$	$r'''' < r''$	$r_2 < r_4$

Lehrfach		Lehrer	Fleiss	Erfolg
$a' + m' = a'$	$a' - m' = m'$			
$a_1 + m' = m'$	$a_1 - m' = a_1$			
$\vartheta_1 + m' = m'$	$\vartheta_1 - m' = \vartheta_1$			
$a'' + m' = m'$	$a'' - m' = a''$			
$a_2 + m' = a'''$	$a_2 - m' = a_4$			
$a''' + m' = a'''$	$a''' - m' = m'$			
$a_3 + m' = m'$	$a_3 - m' = a_3$			
$a'''' + m' = m'$	$a'''' - m' = a''''$			
$a_4 + m' = m'$	$a_4 - m' = a_4$			

$\vartheta < a' < \ldots < b''' < b_2 < b < b'' < b_3 < a_1 < m'$

Factory

a''', b''', r'''

a_2, b_2, r_2

a, b, r; a'''', b'''', r''''; a_4, b_4, r_4

a'', b'', r''

a_3, b_3, r_3

a_1, b_1, r_1

m

(~~Braunschweig, den~~ . . . .

statt der

~~Der Vorstand der Abtheilung:~~ ~~Der Director:~~

. . . .