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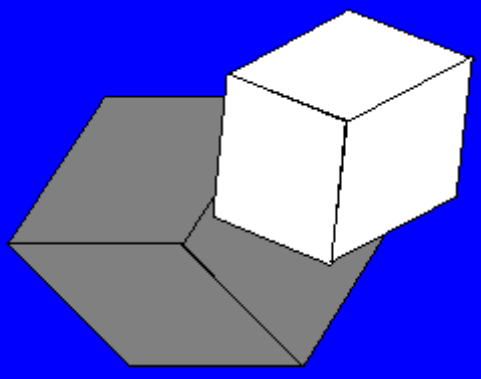
Papers Abstracts



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$V \subseteq U(H)$, V is independent if and only if $\sum_{v \in V} w(v) \leq s$. We introduce Intuitionistic Fuzzy Threshold Hypergraph(IFTHG) along with some of the multiple forms of them such as core, simple, elementary, sectionally elementary IFTHGs and (μ, ν)- tempered IFTHGs, with few of its properties. It is further proven that if an IFTHG $\mathbb{H}_{\mathbb{G}}$ is elementary, support simple and simply ordered, then $\mathbb{H}_{\mathbb{G}}$ is a (μ, ν)-tempered IFTHG. Further, we discuss how this method can be used to recognize water wastage using IFTHG and identify regions where it can be reduced, demonstrating that it is more effective for controlling water management systems compared to other methodologies.

(pp. 67–85)

Some criteria for solvability in finite groups

M. Kuang, J. Lu, W. Meng, B. Zhang

Let G be a finite group and $m(G) = \sum_{g \in G} \frac{1}{o(g)}$, where $o(g)$ is the order of the element $g \in G$. In this paper, we show that if G is a finite nonsolvable group with $m(G) = m(A_5)$, then $G \cong A_5$. Furthermore, we show that if $m(G) < m(\mathrm{SL}(2,5))$ and $m(G) \neq m(A_5)$, then G is solvable.

(pp. 86–92)

SEP elements and the solution to constructed equations

Siyuan Liu, Fanfan Ding, Shaokun Huang, Junchao Wei

For the last five years, SEP elements in a ring with involution have been discussed by many authors. In this paper, we obtain many new characterizations of SEP elements by using group inverse and Moore-Penrose inverse, also by constructing a lot of equations and discussing the expression forms of solution to these equations in certain given set.

(pp. 93–109)

The (p, q, r)-generations of the Mathieu sporadic simple group M_{23}

Malebogo J. Motalane, Ayoub B. M. Basheer, Thekiso T. Seretlo

A finite group G is called (l, m, n)-*generated*, if it is a quotient group of the triangle group $T(l, m, n) = \langle x, y, z | x^l = y^m = z^n = xyz = 1 \rangle$. In [25], Moori posed the question of finding all the (p, q, r) triples, where p, q and r are prime numbers, such that a non-abelian finite simple group G is a (p, q, r)-generated. In this paper we establish all the (p, q, r)-generations of the Mathieu sporadic simple group M_{23}. GAP [16] and the Atlas of finite group representations [30] are used in our computations.

(pp. 110–137)

value of task design for comprehensive topic review and deepening understanding. Collaborative efforts between instructors and students were crucial, resulting in a significant portion of participants passing exams. Initial data show that this direct involvement not only enriches the pre-service teachers' mathematical knowledge but also promises to strengthen their future teaching skills.

(pp. 327–341)

Prospective mathematics teachers' subjectification processes: joint labor in a Moodle environment through Quick Chat plugin

Dello Iacono Umberto, Santi George

In this paper, we describe a study involving master's degree students in mathematics taking the "Mathematics Education" course. The students, potential prospective teachers, worked in presence on an activity designed to make them reflect on teaching practices and methodologies. They first responded individually to an online questionnaire on misconceptions in mathematics. Then, in small groups, they discussed in the Moodle environment through multiple communication channels using the Quick Chat plugin. The plugin allowed the teacher to monitor all conversations in real time. We analyzed a specific context of practice characterized by the introduction of the Quick Chat plugin within the framework of Objectification Theory, resorting to the notions of joint labor and subjectification.

(pp. 342–355)

A learning experience in and from practice using digital technologies: the mathematical discussion

Antonella Montone, Michele Giuliano Fiorentino

In this contribution we report on an experimental research developed with Pre-Service primary Teachers (PSTs) in the Project Digimath, with the aim to give PSTs the opportunity to learn in and from the practice. For doing this we foster the Mathematical Discussion (MD) theoretical framework's learning (Bartolini Bussi, 1989). We explored the effectiveness of a new theoretical approach that combines Shulman's (1986) research about the Pedagogical Content Knowledge (PCK), Ball's Mathematical Knowledge for Teaching (MKT) (2008) and further research on how practice can be used for teachers' learning and what is relevant to learn in and from practice (Ball & Even, 2009), in a digital environment.

We noticed that to become aware of professional education and development of mathematics teachers and of specific characteristics of the teachers' actions, playing different roles (student - PST) is fundamental.

Our work was developed with 160 PSTs attending the Mathematics Education Course at the University of Bari. The MD has been at the same time the subject of the lecture and the methodology used during the lecture, both in a

digital environment and personally. This choice has been done with two different aims: the construction of the MD's characteristics and the way to manage MD in the future professional practice. The experimental activities have been held using hybrid teaching and were videotaped. Conversations have been transcribed and have been used to analyze the teaching experiments.

As we expected, from the transcriptions' analysis, it emerged that the PTSs became aware of the MD's value. In and from their own practice they learned how to manage MD in class, in a future perspective.

(pp. 356–369)

Engineering students' use of scaffolding elements within digital tasks concerning planar integration domains

Francesca Alessio, Agnese Ilaria Telloni

In this paper, we focus on a sequence of digital tasks involving the representation of subsets of the plane as normal domains. We investigate the role of scaffolding elements provided to supports Engineering students' activities with the tasks. The study focuses on 63 volunteer Engineering freshman. Using qualitative methods, we carried on the combined analysis of video recordings of the students' interaction with the tasks in small groups and their individual answers to a survey after the activity. The main result of the data analysis is the identification of three categories of students' behaviours concerning their use of the provided scaffolding elements. These categories reflect different ways of grasping the scaffolding, purposes and levels of awareness by the students.

(pp. 370–387)

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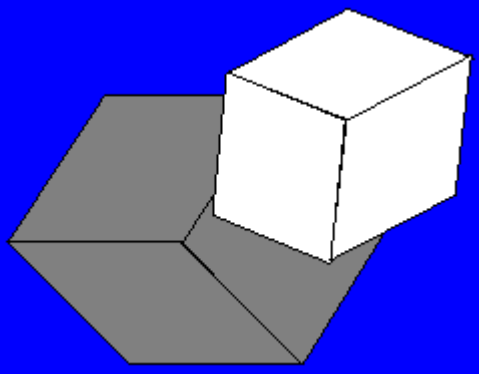

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