



CASIO EDUCATION
INDONESIA

School Mathematics Curriculum Review

(Study of Calculator Utilization in Elementary School, Junior, Senior & Vocational High School in Indonesia)

Affirmation

Representation

Exploration

Komputation

CASIO
fx-991EX PLUS
NATURAL-V.P.A.M.
TWO WAY POWER

$\int_0^{\frac{\pi}{2}} \sin(x) dx = \frac{1}{2}$

CASIO
fx-991EX
CLASSWIZ

D	E	F	G
177	175	176	178
177	175	171	182
173	175	175	171
175.75	175.6	176.2	177.55

=Mean(D1:D40)

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Researchers:

1. Dr. Heri Retnawati (Universitas Negeri Yogyakarta)
2. Dr. Ariyadi Wijaya (Universitas Negeri Yogyakarta)
3. Wahid Yuniyanto, M.Sc., M.Ed. (SEAMEO-QITEP)
4. Pastita Ayu Laksmiwati, M.Pd. (SEAMEO-QITEP)
5. Mutia Meilina Munawar, M.Ed. (Casio Education, Singapore)
6. Pientha Glendys Amantie, M.Sc. (Casio Education, Singapore)
7. Rifki Irawan, S.Si., M.Sc. (Casio Education, Singapore)

Contributors:

1. Prof. Widodo, Ph.D. (Universitas Gajah Mada, Yogyakarta, Colaborator)
2. Dr. Wahyudi (SEAMEO-QITEP, Colaborator)
3. Dr. Ganung Anggraeni (SEAMEO-QITEP, Colaborator)
4. Sri Hidayati, S.Si, M.Si (Ahli Peneliti Muda, Puskurjardikbud)
5. Dr. Lambas (Puskurjardikbud)
6. Hermanto Wawuru, S.Pd. (Analisis Data, Puslitjardikbud)
7. Noorman Priowicaksono, S.Kom., M.Pd. (Perekayasa Muda, Staf Teknis Bidang Kurikulum, Puskurjardikbud)
8. Andi Muhammad Yusri Saad, S.S., M.M. (Perekayasa Muda, Puskurjardikbud)
9. Fera Herawati, M.Si. (Pengembang Kurikulum, Puskurjardikbud)
10. Novi Murniati, S.Si. (Pengembang Model Penilaian Pendidikan, Puspendikbud)
11. Ilham Rizkianto, M.Sc. (Universitas Negeri Yogyakarta, Reviewer)
12. Nila Mareta Murdiyani, M.Sc. (Universitas Negeri Yogyakarta, Reviewer)
13. Ummy Salmah, M.Ed. (SEAMEO-QITEP, Reviewer)
14. IGA Russasmita Sri Padmi, M.Sc. (SEAMEO-QITEP, Reviewer)
15. Anggit Prabowo, M.Pd. (Universitas Ahmad Dahlan Yogyakarta, Reviewer)
16. Dwi Astuti, M.Pd. (Universitas Ahmad Dahlan Yogyakarta, Reviewer)
17. Aan Hendroanto, M.Sc. (Universitas Ahmad Dahlan Yogyakarta, Reviewer)
18. Yosep Dwi Kristanto, M.Sc. (Universitas Sanata Dharma Yogyakarta, Reviewer)
19. Ezi Apino, M.Pd. (Universitas Negeri Yogyakarta, Reviewer)
20. Janu Arlinwibowo, M.Pd. (FGD Participant)
21. Ibnu Raffi, S.Pd. (Suporting Staff)

**School Mathematics Curriculum Review
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Abstract

In line with technological developments, the use of technology can no longer be avoided, including its integration in learning. One of technology that can be integrated in learning is a calculator. This research was aimed to (1) describe the comparison of calculator utilization in several countries, (2) describe the potential calculator utilization in Indonesia, (3) map mathematical material in the elementary school (SD)/junior high school (SMP)/senior high school (SMA)/vocational school (SMK) curriculum that can be integrated using calculators, (4) compile examples of the use of calculators in the mathematics class, (5) mapping the type of calculator utilization in each material in the SD/SMP/SMA/SMK curriculum and (6) identifying the features of the Casio ID Plus and Classwiz calculators that can be used at every school level.

This research is a curriculum development research, especially the curriculum review stage. The review was conducted by benchmarking calculator utilization with other countries, focus group discussion (FGD) about the urgency for calculator utilization for schools in Indonesia, and mapping mathematical material that can be integrated with calculators. The benchmarks are carried out by reviewing the literature and inviting experts, and the countries as the focus of the study were Singapore, Malaysia, Australia, Finland and the USA. The FGD on the urgency of calculator utilization was conducted with 12 curriculum reviewer participants, 10 collaborators from Universities, SEAMEO QITEP, Curriculum and Learning Centers and Educational Assessment Centers. The material mapping that requires a calculator was conducted by 12 college (PT) reviewers for elementary school, junior high school, senior high school and vocational school levels. Data analysis was done by quantitative and qualitative methods.

The results showed that (1) Singapore, Malaysia, Australia, Finland and America have integrated calculators, and it helped students explore concepts, material representations, results affirmations, and number computations that make students master mathematics; (2) calculators have the potential to be utilized and integrated in mathematics learning; (3) The basic competency map (peta kompetensi dasar) of mathematics subjects from the elementary, middle, high school and vocational curriculum that can be integrated with calculators have been compiled; (4) examples of the use of calculators in mathematics learning have been compiled, which can be used as references for developing/designing teaching materials; (5) calculators at all levels of education based on curriculum maps and examples of their use in class, are predominantly used to explore mathematical concepts, which support learning in accordance with Curriculum 2013; (6) ID Plus calculator features for dominant in elementary school were Comp, Check, and Stat, for SMP are Comp, Check, and Table features, for high schools and vocational schools that use Classwiz, the dominant features used in SMA were Table, Spreadsheet, Calculate, and Matrix, and for Vocational Schools, the dominant features were Calculate, Spreadsheet, Table, and Matrix. From the results of this research, it is expected that there will be a follow-up in the form of explicit writing in regulatory text concerning the integration of calculators in mathematics teaching and learning, the preparation of teaching materials based on curriculum maps of calculator utilization, and training to improve teacher competence in integrating calculators in mathematics class.