



The UVI Growth Model and Peer-Led Team Learning Research in Mathematics Foundation Courses

Overall Goal of the Project

ACE Implementation Project: The UVI Growth Model

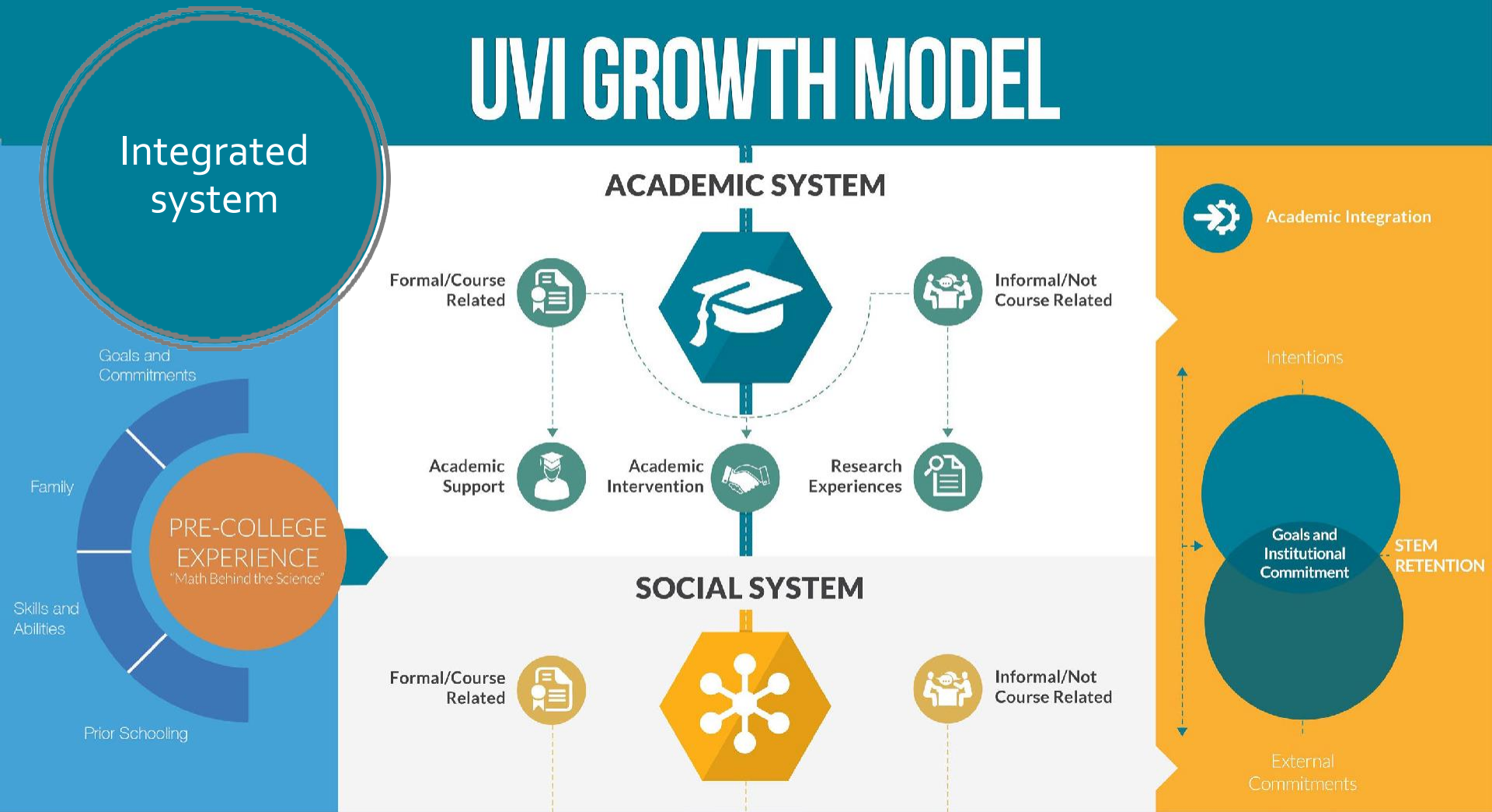
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Create, expand and validate UVI's current model of undergraduate STEM education, which targets student professional development and enhancement of the STEM environment to impact student personal growth and success in STEM.

[Underlying Question: Can a focus on the overall environment lead to increased student success in STEM?]

ACE Implementation Project: The UVI Growth Model

UVI GROWTH MODEL



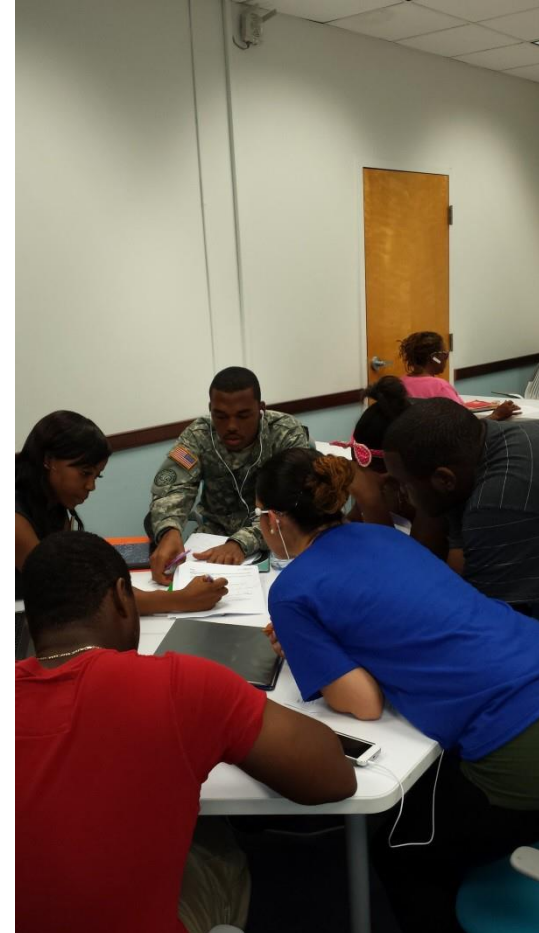
NSF Funded Project: 2016-2022

Proposed Strategies

- Summer Boost Program
- Peer Led Team Learning (PLTL)
- Peer Academic Coaching
- Math Behind the Science Bridge Program
- Summer Research Experiences
 - Summer Freshmen Research Institute
- Academic Year Research Experience
- Mindset Training
 - Math Behind the Science
 - Freshman Development Seminar
- Faculty development program

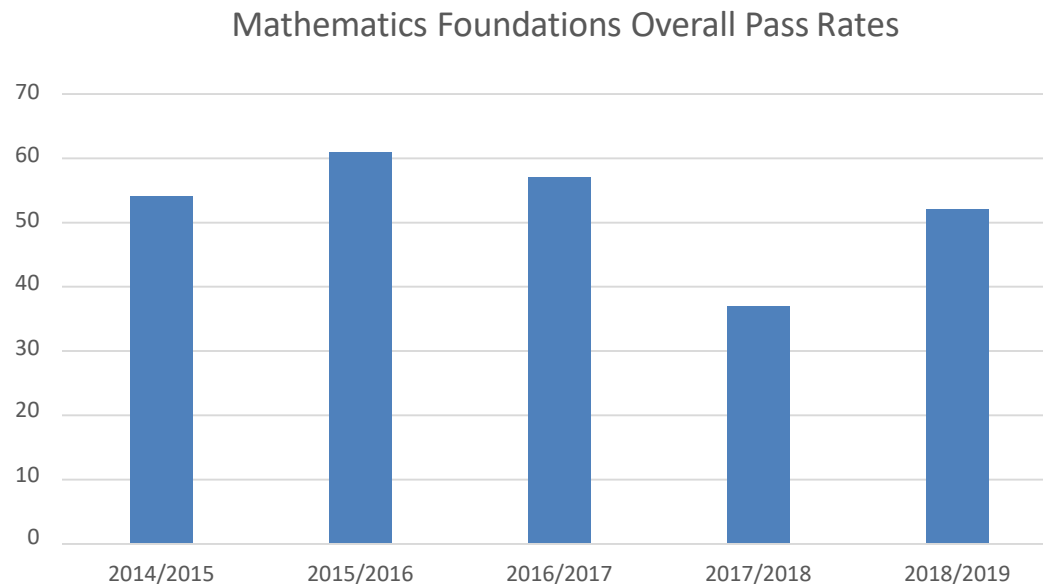
Peer-Led Team Learning(PLTL) Mathematics Foundations

- Required 5th hour for all students
 - Assigned small groups (6-8 students)
 - Assigned to one leader and location
- Weekly hour-long training for peer leaders
 - Content Knowledge
 - Facilitation Techniques
 - Mindset Training
 - Mathematics Anxiety
- Ongoing revisions of curriculum
 - Mathematics faculty from both campuses
 - Alignment with course
 - Challenging and designed for collaboration



Impact of PLTL on Pass Rates: Mathematics Foundations Courses

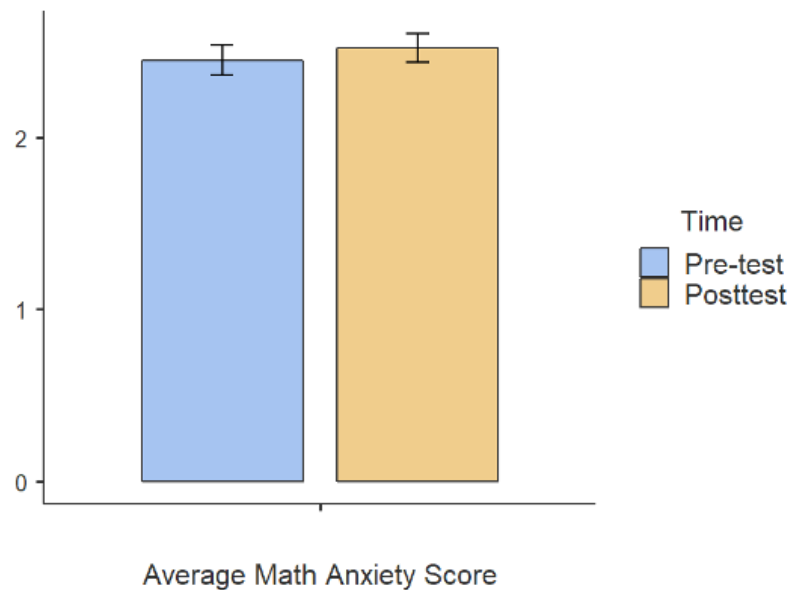
- Prior to 2012, overall pass rates below 50%
- Overall pass rates increasing post storms 2017/2018 SY
- Larger pass rates in first course in sequence (MAT 023)



Research Questions

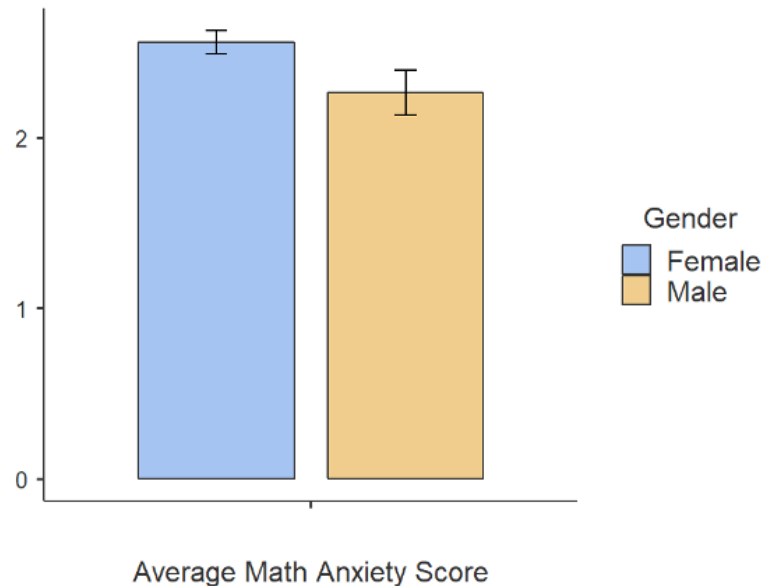
- Overarching Question
 - What is the validity and reliability of the UVI Growth Model towards student retention?
- Sub-Question for PLTL
 - What is the impact of the UVI Growth Model component, PLTL, on mathematics anxiety and mathematics self-efficacy

Preliminary Findings Spring 2019: Mathematics Anxiety



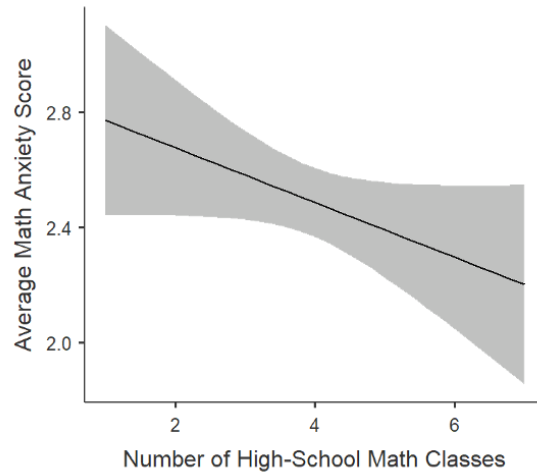
Math anxiety scores did not significantly differ between pre-test ($M = 2.45$, $SE = .09$) and posttest ($M = 2.52$, $SE = .08$), $t(164) = -.06$, $p = .23$. Click to add text

Preliminary Findings: Mathematics Anxiety and Gender

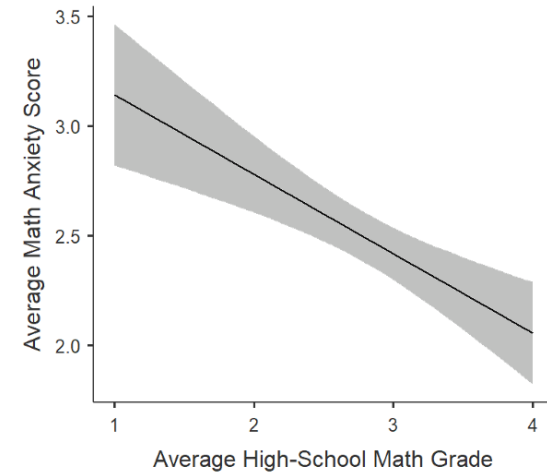


Math anxiety scores were significantly higher for females ($M = 2.56$, $SE = .07$, $N=120$) than for males ($M = 2.27$, $SE = .13$, $N=39$), $t(157) = 2.07$, $p = .04$, $d = .38$.

Preliminary Findings: Mathematics Anxiety and HS Math Course and HS Math Grades

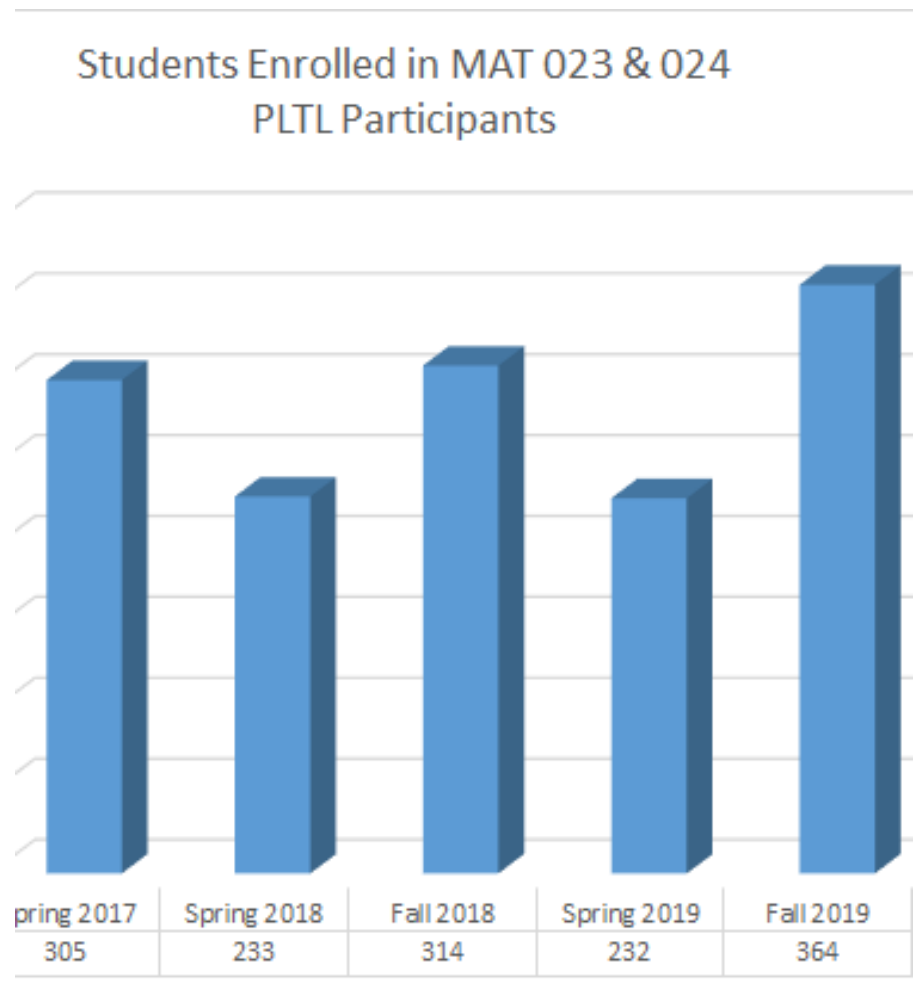


The number of math courses taken in high school was marginally related to math anxiety scores, $r(159) = -.14$, $p = .08$. The more math classes taken in high school, the lower math anxiety ratings.



The higher participants' grades in high school math class, the lower their math anxiety ratings ($p(160) = -.33$, $p < .001$).

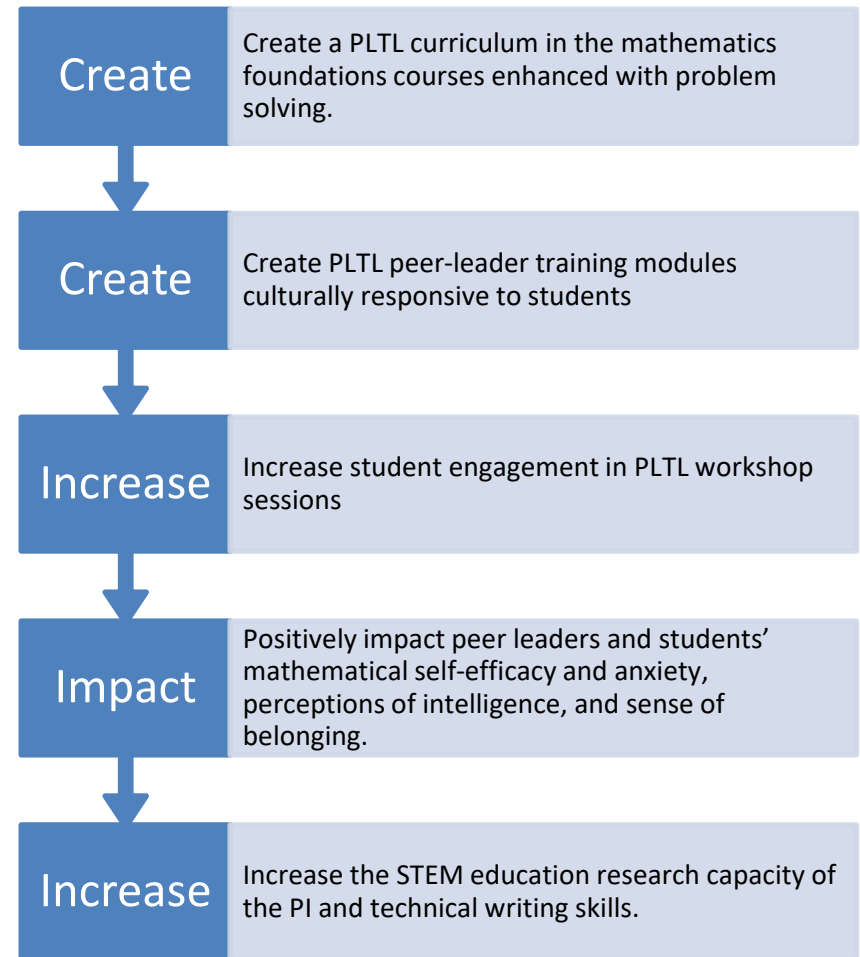
PLTL Students
Impacted = 1448



Goals of the Project



*BCSER: Improving
Peer-led Team
Learning and
Peer-Leader
Training to
Increase
Undergraduate
Student
Achievement in
Mathematics*



Meet the Research Team



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Mills, Ph.D**
Principal Investigator



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Laesha Hobson
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Shimeeka Stanley
Research Assistant
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Culturally Relevant PBL Curriculum

WAPA Strikes Again

During one of the frequent blackouts in the Virgin Islands on October 14, 2019, residents lost power at 4:00 PM. One resident returned from vacation at 3:00 PM the following day to find the clocks in her apartment reading 8:00 AM. At what time, and on what day, was power restored? (Note that when power is lost the clock restarts at 12:00 AM)



Meet the Mentors



**Pratibha Varma-
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IUPUI, Founding Director of
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**Brandon Sorge,
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Associate Professor, IUPUI



**Angelicque Tucker-
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CEO and Director of Research
and Evaluation at Innovative
Learning Center

Questions?

ACE Implementation Project: The UVI Growth Model

BCSER: Improving Peer-led Team Learning and Peer-Leader Training to Increase Undergraduate Student Achievement in Mathematics



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