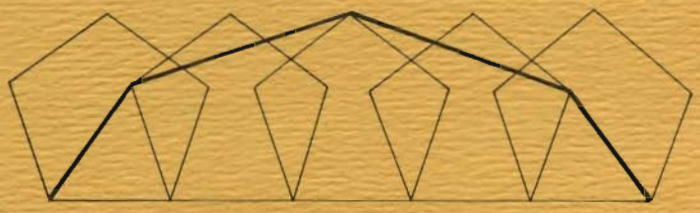
Hampshire College Summer Studies in Mathematics

for high ability high school students
supported by
the National Science Foundation

July 6 - August 16, 1975

Fifty exceptionally motivated and talented secondary school students will be invited to the Hampshire College campus for a challenging and stimulating six week encounter with a wide range of mathematics in an atmosphere designed to be intense and demanding but noncompetitive and friendly. Working in small classes and individually, participants will be led to actively engage the processes of mathematics: investigating concrete problems, seeking patterns and generalizations, formulating conjectures in the language of mathematics, and applying insight and experience to the creation of proofs.



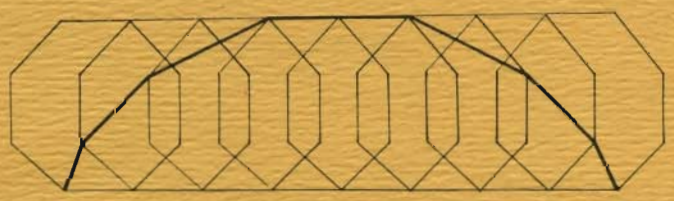
The daily schedule (Monday-Saturday) will ordinarily include four hours of classes each morning and several additional hours of independent and small group study. At the start of the summer participants will be assigned to one of four workshops, each one led by a senior staff member and one or more assistants. Each workshop will investigate many significant problems from outside the usual secondary school or early college curricula—from rings and randomization to topology and transformations—but emphasis will be on the methods of discovery and communication rather than on the accumulation of results. Midway through the program participants will choose, with the guidance of faculty, the direction of their mathematical activities for the remainder of the summer. Classes, seminars, filmmaking, and individual projects have occupied past Summer Studies participants with a myriad of topics: groups, limits, combinatorics, relativity, mathematical logic, map coloring, *and the history and philosophy of mathematics illustrate but* do not exhaust the possibilities.

Each year since 1971 Hampshire College, with the support of the National Science Foundation, has hosted the Summer Studies. Participants in former summers, while enjoying a large measure of freedom and exercising as much responsibility, have worked to the limits of their abilities (without the prod of grades) on problems from elementary and advanced mathematics, have produced computer-animated films, have built scores of illuminating mathematical models, and have come to a deeper understanding of mathematics and the nature of their attraction to it.

The Summer Studies faculty will consist of four college or university mathematicians assisted by talented undergraduate and graduate mathematics students. In addition, frequent guest lecturers will visit the Summer Studies to offer a change of pace and perspective. The entire staff, residing on campus, taking meals in the College dining hall, and sharing recreational activities with students, will strive to create an atmosphere in which mathematics is creatively done, generously shared, and thoroughly enjoyed.

Participants in the Summer Studies will have use of the classrooms, library, lounges, game and puzzle room, and athletic facilities of the Hampshire College campus. Computer facilities will include teletype and graphics terminals connected by phone to the University of Massachusetts KRONOS 2.1 timesharing system, access to the IBM 1130 at Amherst College for computer graphics work, and possibly an on-campus computer for Summer Studies participants exclusively.

Hampshire College, an independent, experimenting, accredited liberal arts institution in its fifth year, is located in the town of Amherst in western Massachusetts. Situated three miles south of Amherst center, the campus includes 550 acres of former farmland, orchards, and woods at the foot of the Holyoke range in the Connecticut River valley.



If a regular polygon is "rolled" along a line—as in the diagrams on this page—a new polygon is formed with vertices at the positions one vertex takes as the polygon rolls. A remarkable [and recently proved] theorem states: The area of the new polygon is three times the area of the original polygon.

For further information or additional application forms, please write:

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