CANADIAN SOCIETY FOR HISTORY AND PHILOSOPHY OF MATHEMATICS
Société Canadienne d'Histoire et de Philosophie des Mathématiques

Dear Colleague,

Each year more mathematics teachers are realizing the relevance of the history or philosophy of mathematics to their own professional development and to their teaching.

In June of 1974, a new society was formed to encourage teaching, study and research in the history and philosophy of mathematics throughout Canada. In the first six months we had grown to a membership of 100 and we soon hope to publish a list of members and their areas of interest.

If you have an interest in the history or philosophy of mathematics, we invite you to join us by filling out and returning the application form below along with a cheque for $4 (the dues for 1975). A cheque for $10 will pay for your 1975 dues as well as a subscription to Vol. II (4 issues) of the Society's regular official journal, *Historia Mathematica*, an international journal, published and edited in Canada, with over 1,000 subscribers.

Join your colleagues and join now.

Yours very truly,

J. L. Berggren
Secretary-Treasurer

NAME ______________________________

MAILING ADDRESS ______________________________

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(province) (post code)

SPECIAL AREAS OF INTEREST ______________________________

AMOUNT ENCLOSED $10 ( ) $4 ( )

On the Transformation of Rectangular Regions into Rectangular Regions of Equal Areas

by *William J. Bruce*

Consider two rectangles, ABCD with sides of lengths a and c, and EFGH with sides of lengths b and d, as shown in Figure 1, and such that $b < a < 2b$, $ac = bd$.

The problem is either to cut up the rectangular region ABCD so that the pieces will cover exactly the rectangular region EFGH, or to construct from ABDC a rectangle of area equal to that of EFGH and having the same shape.

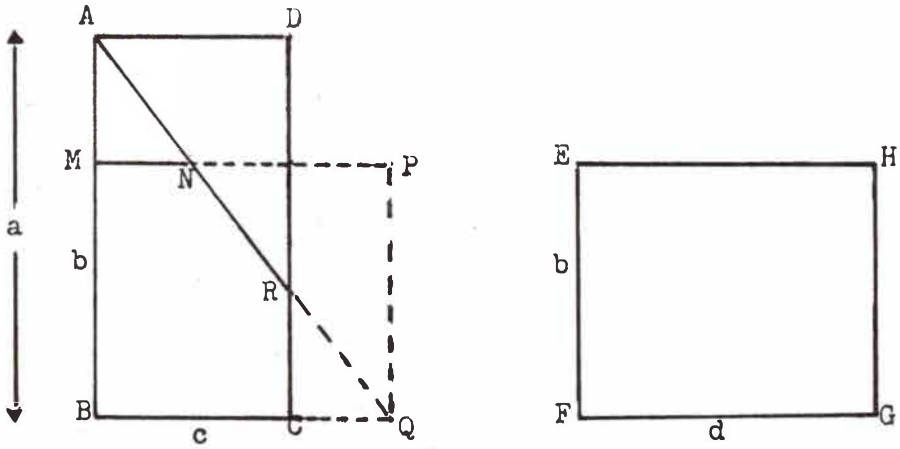


Figure 1

Construct MB = DR = EF, MN parallel to BC, and draw AR. Slide $\triangle$ ADR to the position NPQ. Then Area $\triangle$ RCQ = Area AMN and we have Area Rectangle ABCD = Area Rectangle MBQP = Area Rectangle EFGH. If cutting is done, the triangular pieces AMN and ADR combined with the polygonal piece MBCRN will cover exactly the rectangular region EFGH.

If $2b < a < 3b$, a modification of the procedure is necessary. In this case, it is essential first to reduce the problem to that of the first case. Division of the inequality by 2 gives $b < a/2 < 3b/2$ from which $b < a/2 < 2b$ follows, so that the first case applies. Figure 2 indicates the procedure.

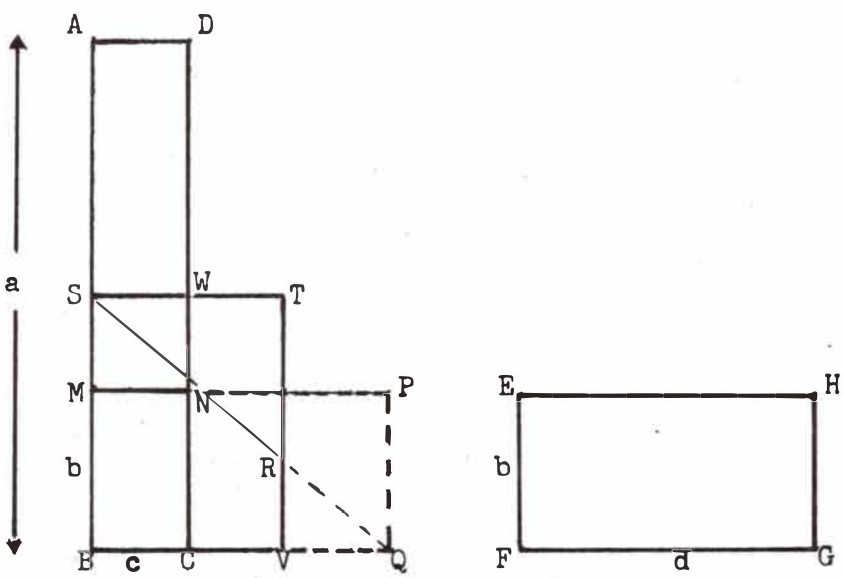


Figure 2

Divide the region ABCD into two equal parts by drawing SW. Place region ASWD in the position WCVT. Then the region SBVT satisfies the conditions of the first case and the construction proceeds as before, starting with this region, to obtain Area Rectangle ABCD = Area Rectangle SBVT = Area Rectangle MBQP = Area Rectangle EFGH.

In general, if AB is of length L, we can divide the rectangular region into n equal parts such that we always have $b < L/n < 2b$ for $L > b$ and the procedure is similar to that shown in Figure 2.

Trivial cases exist when $L = nb$ and require at most the division of the region into n equal rectangular parts and side-by-side placement of these parts as in Figure 2.

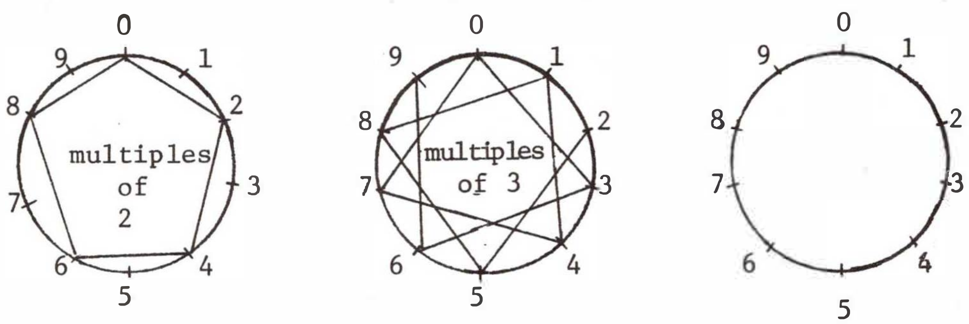
Ideas and Manipulatives you can try

Games, Games, Games

GAME I: Multiplication Fun

Directions: To graph multiples on the circle, start with 0 and connect in order the points with line segments until 0 is reached again.

Example A **Example B** **Try One**



GAME II: Biggest Number

Materials: Make 3 of each of the 10 digits (0,1,2...9) on transparency squares (for class demonstration), or on construction paper squares (for math center).

Directions: Pull one square out of container at a time. Place it (or its digit) in box of your choice. - Remember it can't be moved after it is placed!! When boxes are filled, decide biggest number (or sum or difference).