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LABORATORY EXERCISES FOR NINTH GRADE GENERAL MATHEMATICS

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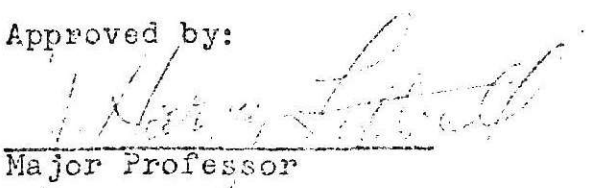

Major Professor

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THE PROBLEM

> Laboratory teaching is one answer to giving reality to mathematics without the loss of its abstract and theoretical aspects.[1]

The preceding was stated by Howard F. Fehr, of Columbia University, as he looked at the great potential of the laboratory in teaching mathematics.

Some teachers now use some type of laboratory exercises at different times throughout the year; however, at present no published laboratory manual for ninth grade general mathematics exists.

> There is a scarcity of mathematics laboratory lessons, however, and much more work must be done. More teachers of general mathematics must experiment with laboratory lessons and learn to construct new units that successfully motivate general mathematics students. These ideas must be exchanged, refined, and incorporated into a relevant, but varied and attractive, ninth-grade general mathematics program.[2]

In the four years that the author has been teaching junior high mathematics, it has become evident that such a manual would be invaluable as a supplement for teaching ninth-grade general mathematics students.

Statement of the problem. It is the purpose of this

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[1]Howard F. Fehr, "The Place of Multisensory Aids in the Teacher Training Program," The Mathematics Teacher, XL (May, 1947), 212-216.

[2]Jerome A. Auclair and Thomas P. Hillman, "A Topological Problem for the Ninth-Grade Mathematics Laboratory," The Mathematics Teacher, LXI (May, 1968), 507.

report to develop a set of sample laboratory exercises which can be used as a supplement to the typical ninth-grade general mathematics books. The purpose of the laboratory exercises will be to enable students to enhance their comprehension of the various topics through concrete experiences.

Importance of the study. All too often in the traditional chalk board and eraser classroom, the teacher knows the concept behind the formula used in working the problems on the day's assignments but fails to realize that to the student such a formula is just something to make homework possible. However, with a simple laboratory exercise the student could gain insight into the how and why of the existence of the formula and hence not only know how to use it but also how to derive it, thus making the whole set of exercises take on a more meaningful and useful application for daily life. To help accomplish this, the author has assembled this report.

REVIEW OF THE LITERATURE

Much has been written in terms of laboratory exercises for the physical sciences. It has been the belief for many years that this was the way to teach these courses, but such is not true of mathematics. Prior to 1950, very few articles appeared in professional journals dealing with the mathematics laboratory; however, since that time numerous