A study to determine the effect of special training upon the time aspect of musical aptitudes of a group of ninth grade negro students

Thomas Lee Shaw
Atlanta University

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A STUDY TO DETERMINE THE EFFECT OF SPECIAL TRAINING UPON THE TIME ASPECT OF MUSICAL APTITUDES OF A GROUP OF NINTH GRADE NEGRO STUDENTS

A THESIS
SUBMITTED TO THE FACULTY OF THE SCHOOL OF EDUCATION OF ATLANTA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

BY
THOMAS LEE SHAW

SCHOOL OF EDUCATION

ATLANTA, GEORGIA
AUGUST 1955

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CHAPTER I
INTRODUCTION

**Rationale.**—The administration of musical aptitude tests, in the selection of students, has been of great concern to music education for sometime.

Some educators feel that these tests are discriminatory in that they fail to meet the needs of all of the students, that is, a number of music educators select students mainly on the basis of results from tests of musical talents and believe that musical training has no effect upon test scores of musical talents. Greene\(^1\) states that C. E. Seashore and Brennon reported that special musical training has little effect upon test scores.

There is, however, another aspect of tests of musical talents that should be considered and that is as it relates to Southern Negro students. Some Southern Negro students, from previous studies, have had a tendency to score lower than whites on all divisions of the Seashore Test of Musical Talents, save rhythm.

Now, this writer believes, along with some musical psychologists, that some test scores can be greatly improved by special musical training. Greene\(^2\) states that Whipple and R. H. Seashore reported marked improvement in pitch discrimination and rhythm.

---


\(^2\)Ibid.
It is further believed that some students score low because they lack the opportunity to hear music accurately reproduced, while others lack interest. Finally, the problem has been of some concern to the writer who, with limited time and facilities, has selected the students for the school band because of their interest in the musical organization and their ability to purchase the instruments they are to play. The question at hand is considering, mainly, the selection of students for the percussion and bass sections of the band. Should the scores made on a test of time be used as the main basis for selecting these students? Or can certain students who seem to be deficient in time be improved sufficiently through special training so as to warrant optimum participation in the band?

**Statement of Problem.**—This experiment was to determine if scores derived from the series A time section of the Seashore Measures of Musical Talents of five ninth grade boys and five ninth grade girls of Rosedale High School, Homewood, Alabama, could be improved through special musical training.

**Purpose of Study.**—The purpose of the study was to test the hypothesis that time as measured by the Seashore Measures of Musical Talents could not be improved through special training.

**Method of Research.**—The research method used in securing the data was the Experimental Method with the paired control group technique.¹

Definitions of Terms.—The definitions of certain terms used in this study make for a clearer understanding of the problem involved. Musical aptitude was defined as whatever is measured by the six tests of which the Seashore battery is composed. Time is used to refer to the measurement afforded by the test of time in the battery. "Improved" as used in this study was defined as a statistically significant change in progress toward higher scores as determined by the one percent level of confidence.

Locale of Study.—The study was conducted in the music room of the high school for Negroes in Homewood, Alabama. Homewood is located between Red and Shades Mountains and is approximately a fifteen-minute drive over the Montgomery highway from Birmingham. Homewood is so named because it is a city of beautiful homes.

The Negro population of approximately 2,300 occupies twelve square blocks of fair conditioned dwellings. The majority of the group work as domestic help.

Procedure.—Both sections of the ninth grade were administered the Otis Quick-Scoring Test of Mental Ability, simultaneously, by the school's counselor. After a lapse of three days, the same procedure was followed with the Stanford Achievement Test. A Social and Economic Characteristics of Individuals and Families Questionnaire was administered by the writer the day following the week-end.
An experimental and a control group were selected on the basis of the data collected from the above three instruments together with a consideration of age, sex and musical training. A detailed statement of how the two groups were formed is given on page nine.

The experimental group was taught the first two days, Monday and Tuesday, by having the subjects keep time by clapping their hands and patting their feet in unison with the beating of a metronome. The metronome was turned off and on intermittently to see how much the clapping and patting deviated from the actual time set. A tonette was used on Wednesday, Thursday and Friday. Two tones were blown, a short one and a long one, and a particular member of the group was asked to tell if the second was shorter or longer than the first. Two more tones were blown and the same question was asked of another member of the group, and of course, the instruction proceeded in this manner to each member of the group. The piano was used on Monday, Tuesday and Wednesday with varying tones, to discriminate short and long tones as previously indicated. The tonette was used on Thursday and Friday in conjunction with the metronome to determine the accuracy of the length of time each tone was held. The tonette again was used with the metronome on Monday, Tuesday, Wednesday, Thursday and Friday as before stated. The final week, Monday through Friday, the group was taught with an electronic device and the second hand of a watch to determine with greater accuracy the differences
between short and long. On Monday of the following week, both
groups were retested. The length of the experimentation was
forty-five minutes a day for fifteen hours over a period of
four weeks.

Description of Instruments.—The following instruments
were used:

1. The Otis Quick-Scoring Test of Mental Ability,
   Beta Test, Form A.
2. The Stanford Achievement Test, Advanced Battery,
   Form J.
3. A Social and Economic Characteristics of In
   dividuals and Families Questionnaire
4. The Seashore, Time Section Series A, Measures
   of Musical Talents
5. A metronome
6. A piano
7. A tonette
8. An electronic device
9. A watch having a second hand

The Otis Quick-Scoring Test of Mental Ability, Beta
Test, Form A, contains eighty items. This test is designed
to measure mental ability-thinking power or the degree of
maturity of the mind. The most appropriate criterion of the
validity of the Beta Test is the actual rate of progress of
pupils through school. The reliability coefficient for combined
grades is .96.
The Stanford Achievement Test, Form J, is the designation of a series of comprehensive achievement tests designed to measure the important knowledges, skills, and understandings commonly accepted as desirable outcomes of the major branches of the curriculum. The reliability coefficients for grade nine are: Paragraph meaning .821, word meaning .894, spelling .943, language .848, arithmetic reasoning .896 and arithmetic computation .878.

The Social and Economic Characteristics of Individuals and Families Questionnaire was drawn up especially for the study by a sociologist. It is designed to give an index to those social and economic characteristics of the population from which the samples were drawn.

The Seashore Measures of Musical Talents, Series A, attempt to measure certain basic components which determine the total index of an individual's innate musicality. The coefficients of reliability for time range from .75 to .77.

A metronome is an instrument for indicating and marking exact time in music.

A tonette is a pre band instrument which is used for prospective instrumental students.

An electronic device was constructed from sections of a radio, that is, condensers, resistors, three tubes, a speaker and a transformer. A tone of approximately 440 vibrations per second was emitted.
Description of Subjects.—Table 1 has been prepared to show data on the factors taken into consideration in the selection of subjects for the experimental and control groups.

**TABLE 1**

SEX, AGE, INTELLIGENCE, ACHIEVEMENT, AND MUSICAL TRAINING OF THE FORTY SEVEN PUPILS IN THE NINTH GRADE FROM WHICH THE EXPERIMENTAL AND CONTROL GROUPS WERE SELECTED

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Sex</th>
<th>Ages</th>
<th>Otis Quick-Scoring Beta IQ's</th>
<th>Stanford Achievement Grade Placement</th>
<th>Musical Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>15</td>
<td>105</td>
<td>8.7</td>
<td>2 years</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>14</td>
<td>105</td>
<td>6.7</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>14</td>
<td>101</td>
<td>7.2</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>14</td>
<td>101</td>
<td>4.1</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>15</td>
<td>96</td>
<td>6.1</td>
<td>1 year</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>15</td>
<td>95</td>
<td>2.8</td>
<td>None</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>14</td>
<td>98</td>
<td>5.0</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>14</td>
<td>98</td>
<td>7.0</td>
<td>1 year</td>
</tr>
<tr>
<td>9</td>
<td>F</td>
<td>14</td>
<td>97</td>
<td>6.0</td>
<td>2 years</td>
</tr>
<tr>
<td>10</td>
<td>F</td>
<td>14</td>
<td>97</td>
<td>5.2</td>
<td>1 year</td>
</tr>
<tr>
<td>11</td>
<td>F</td>
<td>15</td>
<td>91</td>
<td>5.3</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>14</td>
<td>91</td>
<td>5.5</td>
<td>None</td>
</tr>
<tr>
<td>13</td>
<td>F</td>
<td>15</td>
<td>89</td>
<td>5.8</td>
<td>1 year</td>
</tr>
<tr>
<td>14</td>
<td>M</td>
<td>15</td>
<td>89</td>
<td>4.2</td>
<td>3 years</td>
</tr>
<tr>
<td>15</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>2.4</td>
<td>None</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>14</td>
<td>88</td>
<td>3.7</td>
<td>None</td>
</tr>
<tr>
<td>17</td>
<td>M</td>
<td>15</td>
<td>84</td>
<td>3.6</td>
<td>None</td>
</tr>
<tr>
<td>18</td>
<td>F</td>
<td>14</td>
<td>88</td>
<td>3.4</td>
<td>None</td>
</tr>
<tr>
<td>19</td>
<td>F</td>
<td>14</td>
<td>87</td>
<td>2.4</td>
<td>None</td>
</tr>
<tr>
<td>20</td>
<td>M</td>
<td>14</td>
<td>86</td>
<td>3.2</td>
<td>None</td>
</tr>
<tr>
<td>21</td>
<td>F</td>
<td>15</td>
<td>82</td>
<td>2.2</td>
<td>None</td>
</tr>
<tr>
<td>22</td>
<td>F</td>
<td>14</td>
<td>86</td>
<td>2.4</td>
<td>1 year</td>
</tr>
<tr>
<td>23</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>2.4</td>
<td>None</td>
</tr>
<tr>
<td>24</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>4.7</td>
<td>None</td>
</tr>
<tr>
<td>25</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>4.6</td>
<td>None</td>
</tr>
<tr>
<td>26</td>
<td>F</td>
<td>15</td>
<td>81</td>
<td>2.5</td>
<td>None</td>
</tr>
<tr>
<td>27</td>
<td>M</td>
<td>16</td>
<td>77</td>
<td>4.5</td>
<td>None</td>
</tr>
<tr>
<td>28</td>
<td>M</td>
<td>14</td>
<td>80</td>
<td>4.7</td>
<td>None</td>
</tr>
<tr>
<td>29</td>
<td>F</td>
<td>15</td>
<td>78</td>
<td>4.2</td>
<td>None</td>
</tr>
<tr>
<td>30</td>
<td>M</td>
<td>14</td>
<td>79</td>
<td>5.2</td>
<td>None</td>
</tr>
</tbody>
</table>
As one may see from Table 1 the ninth grade class of forty-seven pupils ranged in ages from fourteen years to sixteen years, of which there were twenty-two boys and twenty-five girls. Out of forty-seven, eight had previously had musical training. Practically all of the subjects had access to the radio, phonograph and television. A very small number had access to the piano or other musical instruments.
TABLE 2

MEASURES OF CENTRAL TENDENCY AND VARIABILITY FOR THE AGES, IQ'S, GRADE PLACEMENTS, AND YEARS OF MUSICAL TRAINING OF THE FORTY-SEVEN PUPILS IN THE NINTH GRADE FROM WHICH THE EXPERIMENTAL AND CONTROL GROUPS WERE DRAWN

<table>
<thead>
<tr>
<th></th>
<th>Ages</th>
<th>Beta IQ</th>
<th>Grade Placement</th>
<th>Musical Training</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>14.6</td>
<td>82.55</td>
<td>4.23</td>
<td>.27</td>
</tr>
<tr>
<td>Median</td>
<td>14.0</td>
<td>81.70</td>
<td>4.01</td>
<td></td>
</tr>
<tr>
<td>S. D.</td>
<td>3.0</td>
<td>11.45</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>3.0</td>
<td>47.00</td>
<td>8.40</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Table 2 reveals the average age of the forty-seven pupils to be about fourteen years and six months. The inclusive range was three years since the ages ranged from fourteen to sixteen years. It is also evident that the average for the group would be considered dull when the mean of 82.55 is compared with usual classifications of intelligence quotients. The average grade placement indicated that the group as such was considerably retarded.

Combining Tables 1 and 2 provides a general picture of the variables which were considered in selecting the control and experimental groups.

Selection of Subjects.—The ninth grade was chosen for the study because of the writer's unfamiliarity with them and, also because they were drawn heavily upon each year for music. The task of selecting twenty students out
of forty-seven was one of difficulty. The matter of availability was an influencing factor in this selection.

Two girls were paired as closely as possible in intelligence scores, achievement scores, ages, musical training and results from the social status questionnaire. Two boys were then paired on the same variables. This type of pairing was continued in this manner until there were ten pairs of boys and girls. Each person in a pair was assigned indiscriminately to a group. The means of the necessary variables were computed and such adjustments were made (shifting) so as not to have any significant differences between the means of the variables of the two groups. This factor is discussed in detail in Chapter II.

Pertinent Literature.—The related literature concerning this study is discussed under two headings below:

1. Information derived from the psychology of music training and studies pertinent to this topic.
2. Theoretical discussions of the probable influence of musical training and pertinent topics.

Klaver\(^1\) reported that he wanted to determine the effect of special training upon rhythmic discrimination. He chose

an experimental and a control group. He taught the experimental group intensively for two months. After that time, he retested both groups and found that the experimental group made no improvement.

Weiner, Bienstock and Drake performed the test in training with students who were enrolled in a school of arts and music. They concluded that the effect of training was not marked.

Greene cited studies by Farnsworth, C. E. Seashore and Brennon. Farnsworth felt that the effect of repeating Seashore Measures of Musical Talents under standard test conditions was small. C. E. Seashore and Brennon stated, also, that test scores showed little improvement through special musical training.

Wolner and Pyle reported that some psychologists, notably Dr. C. E. Seashore, have held that pitch discrimination was little affected by age or training. If a child lacked the ability to discriminate pitch, he then could not improve regardless of training.

---

1Ibid.

2Edward Greene, op. cit., p. 301.

Kwalwasser, however, reported that he used the mean scores in comparing junior high school students who had received ten or more private lessons with those who had not received any training. The mean for the trained group on the K-D battery was 187.50, while for the untrained group it was 176.25. The difference was considered as statistically reliable.

Wolner and Pyle reported that they took seven of the most pitch-deficient children in three Detroit elementary schools and trained them for three months, using the piano, tuning forks, and vocal exercises. They were then able to sing and distinguish pitch with considerable accuracy.

According to Wedell, a study by Mull showed practice to significantly improve the pitch estimation of the subjects used in the study.

Lundin makes the following pertinent statement:

"Talents in music are not independent of each other and can be trained to various degrees of proficiency providing one


2Manuel Wolner and W. H. Pyle, op. cit.


has sound biological equipment.

C. E. Seashore\(^1\) states that the sense of time has two aspects and that is as it relates to fine distinctions of short intervals of time and also as it relates to the judging of the flow of time in longer periods as seconds, minutes, or days. One must recognize the fact that individuals differ extraordinarily in their abilities to judge sustained intervals of time. As in the case of the delivery of a speech, the work of the day, judgment depends largely upon an appraisal of the net result of the flow of events which occur within a time period. An individual may engage in idle talk for an hour without having noticed the passing of time, while his host may become restive and over-estimate the duration. One may think of how differently the time passes when he is listening to a boring musical program over against one of enjoyment.

The sensitivity to time, Seashore affirms, differs from the sensitivity to pitch, timbre and intensity and that structure of the ear, under normal conditions, does not depend upon it. Individual differences must be recognized in the capacity for hearing time. These differences are due to such a capacity for differential attention or ear-mindedness, that is to say, one has a tendency to live in a tonal world where importance is attached to the temporal aspects of sounds. We make large use of the discrimination for time which we usually call the

---

sense of time and attach no great significance to the measurement of sensitivity to time.

Individual differences, evidently, in the capacity for hearing time are basic to the capacity for feeling time. This plays such an important role in enjoyment and in music production.

The sensory capacity functions throughout music in such forms as perception, memory, imagination, feeling, and action. Such forms of precision or tempo, synchronization, rhythm or artistic deviation in terms of temporal aspects constitute at least a good fourth of the content of the musical medium.

Halson and Oran Eagleson\(^1\) made a study of "The Identification of Musical Instruments When Heard Directly Over a Public Address System". They concluded that some persons with musical training made lower averages than some persons without musical training in identifying instruments.

The general significance of skills from specific training in music is expressed by Seashore\(^2\) who states:


such skills in the automatism built up in the pupil furnished a necessary control of the organism for artistic performance.

Gates\textsuperscript{1} points out that music talent is not a unit trait but an aggregation of them:

Since all of these abilities are involved in music, it follows that aptitude for music is not to be conceived as a unit trait on a single and simple capacity. The abilities are: 1. Tests of musical sensitivity; 2. Tests of native capacity for acquiring skill in motor production of tones, vocal, instrumental or both; 3. Tests of musical memory and imagination; 4. Tests of musical intellect; 5. Tests of musical feeling. On the contrary it is an aggregate of many. Excellence in one, coupled with deficiencies in others, would not suffice for achievement. Some single deficiencies such as the capacity to discriminate pitch within limits—a capacity that is usually native and unimprovable—would, on the other hand make progress in certain phases of musical ability impossible however optimum the capacities in other respects. The apt individual is the one who approaches an optimum degree of native endowment in all. A final appraisement of musical aptitude would consequently, be based on a consideration of many constituent capacities, each weighted in accordance with its importance.

Andrew and Leeder\textsuperscript{2} state that Carl Seashore refers to capacity as inborn or native power and ability as acquired skill in the use of a capacity. The two terms are often used interchangeably. Tests of musical capacity are

\textsuperscript{1}Arthur Gates, Psychology for Students of Education (New York, 1931), pp. 538-539.

also called talent or aptitude tests; they attempt to measure certain basic factors or components that determine the total index to one's innate musicality.

Seashore\textsuperscript{1} states that musical talents vary in individuals and that the musical mind is a normal mind. In testing, we are dealing particularly with one aspect of the total personality. We are securing, theoretically, as a test result a measure of pure native capacity.

Siegmeister\textsuperscript{2} stated that today's composers, like many of the great musicians of the past, had to study, toil and struggle in order to learn their music. If we could look at Beethoven's sketchbook, we would see how hammered and battered away and how he wrote and rewrote most of his greatest compositions before they were right. Bach asked Beethoven the secret of his art; he was told by Beethoven that he had worked hard. All of the great masters had to work hard constantly, with great application in order to have written and played such masterpieces.

\textsuperscript{1}Seashore, \textit{op. cit.}

CHAPTER II

PRESENTATION AND INTERPRETATION OF DATA

Treatment of Data.—The data in this chapter are presented in the form of means, medians, ranges, standard deviations, semi-interquartile ranges, and the standard errors of mean differences. The data further give the significant differences, if any, between the means of the experimental and control groups on the initial Seashore Time Test of Musical Talents; the significant differences, if any, between the means of the initial and final Seashore Time Test of Musical Talents of the experimental group, and finally the significant differences, if any, between the means of the control and experimental groups on the final Seashore Time Test of Musical Talents of a group of students enrolled in the ninth grade of Rosedale High School, Homewood, Alabama, 1954-1955.

These data were obtained through the administration of three tests and one questionnaire: Otis Quick-Scoring Test of Mental Ability, Form B; Stanford Achievement Test, Form J; the Seashore Time Test of Musical Talents, and a Social and Economic Characteristics of Individuals and Families Questionnaire.

The criterion of reliability for the significance of the difference between the means was established with reference to...
to a "t" of 3.25 at one per cent level of confidence for nine
degrees of freedom. This high degree of reliability was set
in order that ninety-nine times out of every one hundred the
conclusion with reference to the null hypothesis would
probably be correct, and only once out of every one hundred
would there be a probability of an error in this respect.

A review of some of the descriptive factors of the
forty-seven pupils in the ninth grade of the Rosedale High
School of Homewood, Alabama should help in considering the
control and experimental groups which were drawn from this
larger group.

There were twenty-two boys and twenty-five girls
ranging in ages from fourteen to sixteen years. They made
a mean Beta Intelligence Quotient on the Otis Quick-Scoring
Test of Mental Ability of 82.55, a median on the same test
of 81.70 and a standard deviation of 11.45. The range was
47.00. This same group had a mean grade placement on the
Stanford Achievement Test of 4.23 and a median grade place-
ment of 7.4. The group had a mean of .27 years of musical
training.

The occupations of the parents of the group were maids,
porters, cooks, steel workers, laborers, construction workers,
truckers and miners. The average weekly salary was fifty
dollars. Ninety-five per cent owned televisions and phono-
graphs and twenty per cent owned musical instruments.
**Description of Control Group.**—As one may see in Table 3, page 14, data are presented which provide a description of the control group.

**TABLE 3**

**SEX, AGE, INTELLIGENCE, ACHIEVEMENT, MUSICAL TRAINING, AND SEASHORE TIME MEASUREMENT OF TEN PUPILS IN THE CONTROL GROUP**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Sex</th>
<th>Ages Years</th>
<th>Beta IQ's</th>
<th>Otis Quick-Scoring Test</th>
<th>Stanford Achievement Test</th>
<th>Seashore Musical Raw Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Y</td>
<td>F</td>
<td>15</td>
<td>96</td>
<td>6.1</td>
<td>1(\frac{1}{2}) years 5</td>
<td>11</td>
</tr>
<tr>
<td>2Y</td>
<td>M</td>
<td>14</td>
<td>101</td>
<td>7.2</td>
<td>None</td>
<td>29</td>
</tr>
<tr>
<td>3Y</td>
<td>F</td>
<td>14</td>
<td>97</td>
<td>6.0</td>
<td>2 years 13</td>
<td>23</td>
</tr>
<tr>
<td>4Y</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>4.7</td>
<td>None</td>
<td>26</td>
</tr>
<tr>
<td>5Y</td>
<td>F</td>
<td>15</td>
<td>89</td>
<td>5.8</td>
<td>1 year 24</td>
<td>26</td>
</tr>
<tr>
<td>6Y</td>
<td>M</td>
<td>14</td>
<td>80</td>
<td>4.7</td>
<td>None</td>
<td>37</td>
</tr>
<tr>
<td>7Y</td>
<td>F</td>
<td>14</td>
<td>101</td>
<td>4.1</td>
<td>None</td>
<td>22</td>
</tr>
<tr>
<td>8Y</td>
<td>M</td>
<td>15</td>
<td>71</td>
<td>3.2</td>
<td>None</td>
<td>11</td>
</tr>
<tr>
<td>9Y</td>
<td>F</td>
<td>14</td>
<td>91</td>
<td>5.5</td>
<td>None</td>
<td>24</td>
</tr>
<tr>
<td>10Y</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td>2.4</td>
<td>None</td>
<td>23</td>
</tr>
</tbody>
</table>
TABLE 4
MEASURES OF CENTRAL TENDENCY AND VARIABILITY
FOR THE AGES, IQ'S, GRADE PLACEMENTS,
SEASHORE TIME MEASUREMENTS, AND YEARS
OF MUSICAL TRAINING OF THE
CONTROL GROUP

<table>
<thead>
<tr>
<th>Otis Quick-Scoring Test Beta IQ's</th>
<th>Stanford Achievement Test</th>
<th>Musical Training Years</th>
<th>Seashore Test Raw Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>88.80</td>
<td>4.97</td>
<td>.45</td>
</tr>
<tr>
<td>Median</td>
<td>82.50</td>
<td>5.10</td>
<td>14.5</td>
</tr>
<tr>
<td>Range</td>
<td>31.00</td>
<td>6.80</td>
<td>2.00</td>
</tr>
<tr>
<td>Q</td>
<td>9.00</td>
<td>2.10</td>
<td></td>
</tr>
</tbody>
</table>

The control group was ten in number and was designated as group Y. The group ranged in ages from fourteen to fifteen years. The group had a mean Beta Intelligence Quotient of 88.80, a median of 82.50, a range of 31.00, and a semi-interquartile range of 9.00 on the Otis Quick-Scoring Test of Mental Ability. The grade placement on the Stanford Achievement Test was as follows: Mean 4.97, median 5.10, range 6.80, and a semi-interquartile range of 2.10. The group had a mean of .45 years of musical training. The first Seashore Test of Musical Talents (time section) yielded the following: Mean 21.40, median 23.50, range 33.00, and semi-interquartile range of 7.00. The second Seashore Time Test yielded as indicated in the above table.
The parents of the members of the control group were employed as maids, truckers, steel mill workers, laborers, coal miners, yard attendants and cooks. The average weekly salary was fifty-five dollars and sixty cents. Six of the group lived in well constructed houses, while four lived in houses of poor and fair construction. These houses contained an average of 5.3 rooms.

Six of the group rented the houses in which they lived at an average of $24.22 per month. Seven had running water; five had bathrooms; five had flush toilets; five had telephones; three owned automobiles; three owned pianos. Nine had electricity; five owned phonographs; six owned radio-phonographs; all of the ten owned radios, and six owned televisions.

Description of Experimental Group.—One may see, in Table 5, which follows on page 22, data presented which may provide a description of the experimental group.
### TABLE 5

SEX, AGE, INTELLIGENCE, ACHIEVEMENT, MUSICAL TRAINING, AND SEASHORE TIME MEASUREMENT OF TEN PUPILS IN THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Sex</th>
<th>Ages</th>
<th>Beta IQ's</th>
<th>Grade Placement</th>
<th>Otis Quick-Scoring Test</th>
<th>Stanford Achievement Test</th>
<th>Musical Training</th>
<th>Seashore Time Test Raw Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1X</td>
<td>F</td>
<td>15</td>
<td>105</td>
<td></td>
<td>8.7</td>
<td>2 years</td>
<td>25</td>
<td>36</td>
</tr>
<tr>
<td>2X</td>
<td>M</td>
<td>14</td>
<td>98</td>
<td></td>
<td>5.0</td>
<td>None</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>3X</td>
<td>F</td>
<td>14</td>
<td>98</td>
<td></td>
<td>7.0</td>
<td>1 1/2 years</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>4X</td>
<td>M</td>
<td>15</td>
<td>84</td>
<td></td>
<td>3.6</td>
<td>None</td>
<td>31</td>
<td>45</td>
</tr>
<tr>
<td>5X</td>
<td>F</td>
<td>14</td>
<td>88</td>
<td></td>
<td>3.4</td>
<td>1 year</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>6X</td>
<td>M</td>
<td>15</td>
<td>81</td>
<td></td>
<td>4.6</td>
<td>None</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>7X</td>
<td>F</td>
<td>14</td>
<td>97</td>
<td></td>
<td>5.2</td>
<td>None</td>
<td>38</td>
<td>44</td>
</tr>
<tr>
<td>8X</td>
<td>M</td>
<td>14</td>
<td>72</td>
<td></td>
<td>4.2</td>
<td>None</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>9X</td>
<td>F</td>
<td>14</td>
<td>87</td>
<td></td>
<td>2.4</td>
<td>None</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>10X</td>
<td>M</td>
<td>15</td>
<td>74</td>
<td></td>
<td>2.5</td>
<td>None</td>
<td>27</td>
<td>35</td>
</tr>
</tbody>
</table>
TABLE 6
MEASURES OF CENTRAL TENDENCY AND VARIABILITY
FOR THE AGES, IQ'S, GRADE PLACEMENTS, SEASHORE TIME MEASUREMENTS, AND YEARS
OF MUSICAL TRAINING OF THE EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th></th>
<th>Otis Quick-</th>
<th>Stanford Achieve-</th>
<th>Musical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scoring Test</td>
<td>Achievement Test</td>
<td>Training</td>
</tr>
<tr>
<td></td>
<td>Beta IQ</td>
<td>Grade Placement</td>
<td>Ages</td>
</tr>
<tr>
<td>Mean</td>
<td>88.40</td>
<td>4.87</td>
<td>.45</td>
</tr>
<tr>
<td>Median</td>
<td>87.50</td>
<td>4.40</td>
<td>14.2</td>
</tr>
<tr>
<td>Range</td>
<td>35.00</td>
<td>7.30</td>
<td>2.00</td>
</tr>
<tr>
<td>Q</td>
<td>9.00</td>
<td>1.14</td>
<td></td>
</tr>
</tbody>
</table>

The experimental group was ten in number and was designated as group X. This group ranged in ages from fourteen to fifteen years. On the Otis Quick-Scoring Test of Mental Ability the mean Beta Intelligence Quotient was 88.40, median 87.50, range 35, and the semi-interquartile range was 9.00. The grade placement on the Stanford Achievement Test was as follows: Mean 4.87, median 4.40, range 7.30, and a semi-interquartile range 1.14. This group had a mean of .45 years of musical training. The first Seashore Time Test of Musical Talents for this group yielded the following: Mean 25.80, median 25.00, range 21.00 and a semi-interquartile range of 1.62. The second Seashore Time Test of Musical Talent yielded: Mean 33.80, median 33.50, range 30.00, and a semi-interquartile range of 3.25.
The parents of the members of the experimental employed as maids, porters, steel mill workers, construction workers, and laborers. The average weekly salary was fifty-one dollars. Six of the group lived in well constructed houses, while four lived in houses of fair and poor construction. These houses contained an average of 4.6 rooms.

Six of the group rented the houses in which they lived at an average of $22.91 per month. Seven had running water; seven had bathrooms; seven had flush toilets; seven had telephones; six owned automobiles; two owned pianos; all of the group had electricity; five owned phonographs; nine owned radio-phonographs; nine owned radios and seven owned televisions.

**Description of Paired Subjects.**—The subjects were paired by using the data presented in Table 1. Before discussing the data for each of the ten pairs, it should be pointed out that the t-ratio for the significance of the difference between the means of the IQ's of the control and experimental groups was .28 which was too small to be considered reliable. The t-ratio for the grade placement was .18. These ratios justify the conclusion that the two groups were matched for means insofar as I. Q. and grade placement were concerned.

Subject IX made a Beta I. Q. of 105 on the Otis Quick-Scoring Test of Mental Ability and 1Y made a Beta I. Q. of 96 on the same test. Subject IX had a grade placement of 8.7 on the Stanford Achievement Test and subject 1Y a grade placement of 6.1 on the same test. Subject IX scored 25 on the initial
Seashore Test and subject 1Y scored 5 on the initial Seashore Time Test. Subject 1X scored 36 on the final Seashore Time Test and 1Y scored 11 on the final Seashore Time Test.

Subject 2X made a Beta I. Q. of 98 on the Otis Quick-Scoring Test of Mental Ability and subject 2Y made a Beta I. Q. on the same test of 101. Subject 2X had a grade placement of 5.0 on the Stanford Achievement Test and subject 2Y had a grade placement of 7.2 on the Stanford Achievement Test. Subject 2X scored 18 on the initial Seashore Time Test and subject 2Y scored 8 on the final Seashore Time Test.

Subject 3X made a Beta I. Q. of 98 on the Otis Quick-Scoring Test of Mental Ability and subject 3Y a Beta I. Q. of 97 on the same test. Subject 3X had a grade placement of 7.0 on the Stanford Achievement Test and 3Y had a grade placement of 6.0 on the Stanford Achievement Test. Subject 3X scored 25 on the initial Seashore Time Test and subject 3Y scored 13 on the initial Seashore Time Test. Subject 3X scored 39 on the final Seashore Time Test and subject 3Y scored 23 on the final Seashore Time Test.

Subject 4Y made a Beta I. Q. of 84 and subject 4Y made a Beta I. Q. of 81 on the Otis Quick-Scoring Test of Mental Ability. Subject 4X had a grade placement of 3.6 on the Stanford Achievement Test, and subject 4Y had a grade placement of 4.7 on the Stanford Achievement Test. Subject 4X scored 31 on the initial Seashore Time Test and subject 4Y scored 26 on the initial Seashore Time Test. Subject 4X scored 45 on the final
Seashore Time Test and subject 4Y scored 41 on the final Seashore Time Test.

Subject 5X made a Beta I. Q. on the Otis Quick-Scoring Test of Mental Ability of 88 and subject 5Y made a Beta I. Q. of 89 on the same test. Subject 5X had a grade placement of 3.4 and subject 5Y had a grade placement of 5.8 on the Stanford Achievement Test. Subject 5X scored 26 on the initial Seashore Time Test and subject 5Y scored 24 on the initial Seashore Time Test. Subject 5X scored 34 on the final Seashore Time Test and subject 5Y scored 26 on the final Seashore Time Test.

Subject 6X made a Beta I. Q. of 81 on the Otis Quick-Scoring Test of Mental Ability and subject 6Y made a Beta I. Q. of 80 on the same test. Subject 6X had a grade placement on the Stanford Achievement Test of 4.6 and subject 6Y had a grade placement of 4.7 on the same test. Subject 6X scored 25 on the initial Seashore Time Test and subject 6Y scored 37 on the initial Seashore Time Test. Subject 6X scored 32 on the final Seashore Time Test and subject 6Y scored 29 on the final Seashore Time Test.

Subject 7X made a Beta I. Q. of 97 on the Otis Quick-Scoring Test of Mental Ability and subject 7Y made a Beta I. Q. of 101 on the same test. Subject 7X had a grade placement of 5.2 on the Stanford Achievement Test and subject 7Y had a grade placement of 4.1 on the same test. Subject 7X scored 38 on the initial Seashore Time Test and subject 7Y scored 22 on the initial Seashore Time Test. Subject 7X scored 44 on the
final Seashore Time Test and subject 7Y scored 32 on the final Seashore Time Test.

Subject 8X made a Beta I. Q. on the Otis Quick-Scoring Test of Mental Ability of 72 and subject 8Y made a Beta I. Q. of 71 on the same test. Subject 8X had a grade placement on the Stanford Achievement Test of 4.2 and subject 8Y had a grade placement of 3.2 on the Stanford Achievement Test. Subject 8X scored 18 on the initial Seashore Time Test and subject 8Y scored 11 on the initial Seashore Time Test. Subject 8X scored 16 on the final Seashore Time Test and subject 8Y scored 17 on the final Seashore Time Test.

Subject 9X made a Beta I. Q. of 87 on the Otis Quick-Scoring Test of Mental Ability and subject 9Y made a Beta I. Q. of 91 on the same test. Subject 9X had a grade placement on the Stanford Achievement Test of 2.4 and subject 9Y had a grade placement of 5.5 on the Stanford Achievement Test. Subject 9X scored 25 on the initial Seashore Time Test and subject 9Y scored 24 on the initial Seashore Time Test. Subject 9X scored 24 on the final Seashore Time Test and subject 9Y scored 23 on the final Seashore Time Test.

Subject 10X made a Beta I. Q. of 74 on the Otis Quick-Scoring Test of Mental Ability and subject 10Y made a Beta I. Q. of 81 on the same test. Subject 10X had a grade placement on the Stanford Achievement Test of 2.5 and subject 10Y a grade placement of 2.4 on the same test. Subject 10X scored 27 on the initial Seashore Time Test and subject 10Y scored 23 on the
initial Seashore Time Test. Subject 10X scored 35 on the final Seashore Time Test and subject 10Y scored 29 on the final Seashore Time Test.

**TABLE 7**

**INSIGNIFICANT DIFFERENCES BETWEEN MEANS OF OTIS QUICK-SCORING TEST OF MENTAL ABILITY AND STANFORD ACHIEVEMENT TEST FOR CONTROL AND EXPERIMENTAL GROUPS**

<table>
<thead>
<tr>
<th></th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>88.40</td>
<td>88.80</td>
</tr>
<tr>
<td>$M_1 - M_2$</td>
<td>.40</td>
<td></td>
</tr>
<tr>
<td>S.E.md</td>
<td>1.42</td>
<td></td>
</tr>
<tr>
<td>&quot;t&quot;</td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.87</td>
<td>4.97</td>
</tr>
<tr>
<td>$M_1 - M_2$</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>S.E.md</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>&quot;t&quot;</td>
<td>.18</td>
<td></td>
</tr>
</tbody>
</table>
Comparative Data and "t" Ratio.—As one may see in Table 8, comparative data are provided for groups X and Y on the initial Seashore Time Test.

**TABLE 8**

**COMPARATIVE DATA FOR GROUPS X AND Y ON THE INITIAL SEASHORE TIME TEST**

<table>
<thead>
<tr>
<th></th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>25.80</td>
<td>21.40</td>
</tr>
<tr>
<td>$M_1 - M_2$</td>
<td>4.40</td>
<td></td>
</tr>
<tr>
<td>S.E.md</td>
<td>3.96</td>
<td></td>
</tr>
<tr>
<td>&quot;t&quot;</td>
<td>1.01</td>
<td></td>
</tr>
</tbody>
</table>

The mean for group X was 25.80 on the initial Seashore Time Test; for group Y it was 21.40 on the initial Seashore Time Test, with a difference of 4.40. The standard error of a mean difference was 3.96.

The "t" of 1.01 was not significant because it was smaller than the "t" of 3.25 at the one per cent level of confidence with nine degrees of freedom. Therefore, the difference on the initial Seashore Time Test of Musical Talents between groups X and Y was not statistically significant.
As one may see in Table 9, comparative data are provided for the initial and final Seashore Time Test for group Y.

TABLE 9

COMPARATIVE DATA FOR GROUP Y ON THE INITIAL AND FINAL SEASHORE TIME TEST

<table>
<thead>
<tr>
<th></th>
<th>Initial Seashore Time Test</th>
<th>Final Seashore Time Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>21.40</td>
<td>23.90</td>
</tr>
<tr>
<td>(M_1-M_2)</td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>S.E.md</td>
<td></td>
<td>3.26</td>
</tr>
<tr>
<td>&quot;t&quot;</td>
<td></td>
<td>.77</td>
</tr>
</tbody>
</table>

The mean for group Y on the initial Seashore Time Test was 21.40, and on the final Seashore Time Test was 23.90, with a difference of 2.50. The standard error of a mean difference was 3.26.

The "t" of .77 was not significant because it was smaller than the "t" of 3.25 at the one per cent level of confidence with nine degrees of freedom. Therefore, the difference on the initial and final Seashore Time Test of Musical Talents between the first and second testings of group Y was not statistically significant.
As one may see in Table 10 data are provided for group X on the initial and final Seashore Time Test.

TABLE 10

COMPARATIVE DATA FOR GROUP X ON THE INITIAL AND FINAL SEASHORE TIME TEST

<table>
<thead>
<tr>
<th></th>
<th>Initial Seashore Time Test</th>
<th>Final Seashore Time Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>25.80</td>
<td>33.80</td>
</tr>
<tr>
<td>$M_1 - M_2$</td>
<td>8.00</td>
<td></td>
</tr>
<tr>
<td>S.E.md</td>
<td>1.37</td>
<td></td>
</tr>
<tr>
<td>&quot;t&quot;</td>
<td>4.27</td>
<td></td>
</tr>
</tbody>
</table>

The mean for group X on the initial Seashore Time Test was 25.80, and on the final Seashore Time Test was 33.80, with a difference of 8.00. The standard error of a mean difference was 1.37.

The "t" of 4.27 was significant because it was larger than the "t" of 3.25 at the one per cent level of confidence with nine degrees of freedom. Therefore, the difference on the initial and final Seashore Time Test of Musical Talents between the first and second testings of group X was statistically significant.
As one may see in Table 11, data are provided for groups X and Y on the final Seashore Time Test.

TABLE 11
COMPARATIVE DATA FOR GROUPS X AND Y
ON THE FINAL SEASHORE TIME TEST

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>33.80</td>
</tr>
<tr>
<td></td>
<td>23.90</td>
</tr>
<tr>
<td>M₁-M₂</td>
<td>9.90</td>
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<tr>
<td>S.E.md</td>
<td>2.97</td>
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<tr>
<td>&quot;t&quot;</td>
<td>3.33</td>
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The mean for group X was 33.80 on the final Seashore Time Test; for group Y it was 23.90 on the final Seashore Time Test, with a difference of 9.90. The standard error of a mean difference was 2.97.

The "t" of 3.33 was significant because it was larger than the "t" of 3.25 at the one per cent level of confidence with nine degrees of freedom. Therefore, the difference on the final Seashore Time Test of Musical Talents between groups X and Y was statistically significant.
Performance Analysis.--Subjects 1X and 1Y scored 25 and 5 respectively on the initial Seashore Time Test of Musical Talents. Subject 1X was given special training for fifteen hours over a period of four weeks. The final Seashore Test revealed that subject 1X had scored 36 and subject 1Y had scored 11.

Subjects 2X and 2Y scored 18 and 29 respectively on the initial Seashore Time Test. Subject 2X was given special training for fifteen hours over a period of four weeks. On the final text 2X scored 33 and 2Y scored 8.

Subject 3X scored 25 and subject 3Y scored 13 on the initial test of time. Subject 3X was taught fifteen hours over a period of four weeks. On the final test 3X scored 39 and 3Y scored 23.

On the initial test, subject 4X scored 31 and 4Y scored 26. Subject 4X was given special training for fifteen hours over a period of four weeks. Subject 4X scored 45 and subject 4Y scored 41 on the final Seashore Test.

Subjects 5X and 5Y scored 26 and 24 respectively on the initial Seashore Time Test. Subject 5X was taught fifteen hours over a period of four weeks. Subject 5X scored 34 and subject 5Y scored 26 on the final Seashore Time Test.

Subject 6X scored 25 and subject 6Y scored 37 on the initial Seashore Time Test. Subject 6X was taught fifteen hours over a period of four weeks. On the final Seashore Time Test 6X scored 32 and subject 6Y scored 29.
Subject 7X scored 38 and subject 7Y scored 22 on the initial Seashore Time Test. Subject 7X was taught fifteen hours over a period of four weeks. On the final Seashore Time Test subject 7X scored 44 and subject 7Y scored 32.

Subjects 8X and 8Y scored 18 and 11 respectively on the initial Seashore Time Test. Subject 8X was taught for fifteen hours over a period of four weeks. The final Seashore Test revealed that subject 8X had scored 16 and 8Y had scored 17.

On the initial Seashore Time Test subject 9X scored 25 and 9Y scored 24. Subject 9X was taught seven hours over a period of four weeks. On the final Seashore Time Test subject 9X scored 24 and 9Y scored 23.

Subjects 10X and 10Y scored 27 and 23 respectively on the initial Seashore Time Test. Subject 10X was taught fifteen hours over a period of four weeks. On the final test subjects 10X and 10Y scored 35 and 29 respectively.

Three subjects in the control group scored lower on the second Seashore Time Test than they did on the first; however, the others showed some improvement.

Two subjects in the experimental group scored lower on the second Seashore Time Test than they did on the first; however, the others showed improvement.
FIGURE 1

GROUP Y

Seashore Test Scores

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<th>Subjects</th>
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Fig. 1. Graph of the performances of the control group on the initial and final Seashore Time Test.

Initial Test ---
Final Test
Fig. 2.—Graph of the performances of the experimental group on the initial and final Seashore Time Test.

Initial Test ---
Final Test
### EXPERIMENTAL DESIGN

<table>
<thead>
<tr>
<th>Control Group*</th>
<th>Experimental Group*</th>
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<tbody>
<tr>
<td><strong>My₁</strong></td>
<td><strong>Mx₃</strong></td>
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<tr>
<td>Initial Seashore Time Score 21.40</td>
<td>Initial Seashore Time Score 25.60</td>
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<tr>
<td><strong>My₂</strong></td>
<td><strong>Mx₄</strong></td>
</tr>
<tr>
<td>Final Seashore Time Score 23.90</td>
<td>Final Seashore Time Score 33.80</td>
</tr>
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</table>

Difference between **My₁** and **My₂** is statistically insignificant.  
Difference between **My₁** and **Mx₃** is statistically insignificant.  
Difference between **My₂** and **My₄** is statistically reliable.  
Difference between **Mx₃** and **Mx₄** is statistically reliable.

Factors on which the two groups were paired are:

1. Grade  
2. Age  
3. Sex  
4. Intelligence  
5. Achievement  
6. Musical Training  
7. Results from questionnaire.
CHAPTER III

SUMMARY AND CONCLUSIONS

Problem, Purpose, and Methodology.--This experiment was to determine if scores derived from the series A time section of the Seashore Measures of Musical Talents of five ninth grade boys and five ninth grade girls of Rosedale High School, Homewood, Alabama could be improved through special musical training.

The purpose of the study was to test the null hypothesis that musical aptitude time test scores could not be improved through special musical training.

The research method used in securing the data was the Experimental Method with the paired control group technique.

The definitions of certain terms used in this study make for a clearer understanding of the problem involved. Musical aptitude was defined as measures resulting from the time section of the Seashore Measures of Musical Talents. "Improved" as used in this study was defined as a change in progress toward higher scores.

Summary of Literature.--The literature reviewed has been concerned with theory and the improvement of Musical Aptitude Time Test Scores.
The main points of particular significance to the writer was that there were conflicting reports and opinions as to the improvement of scores derived from Seashore Measures of Musical Talents.

Research indicates some musical psychologists report that some Negro students score lower than whites on all divisions of the Seashore Measures of Musical Talents, save rhythm.

The literature states that capacity has reference to inborn or native power, and ability is used to designate acquired skill in the use of a capacity. The tests of musical capacity attempt to measure, in some way, certain basic elements which determine the total index of an individual's innate musicality.

Summary of Findings.--The summary of the findings of this research was organized under five captions: The population; the differences between groups X and Y on the initial Seashore Time Test; the difference between group Y on the initial and final Seashore Time Test; the difference between group X on the initial and final Seashore Time Test; and the difference between groups X and Y on the final Seashore Time Test.

The population consisted of twenty-two boys and twenty-five girls, ranging in ages from fourteen to sixteen years. From this group, the control and experimental groups were
drawn. These two groups were administered the Seashore Time Test. The experimental group was given special training for four weeks. These two groups were then retested.

The means for the experimental group and the control group were 25.30 and 21.40 respectively. The difference between these means yielded a "t" of 1.01 which was not significant at the one per cent level of confidence.

The means for the control group on the initial and final Seashore Time Test were 21.40 and 23.90. The difference between these means yielded a "t" of .77 which was not significant at the one per cent level of confidence.

The means for the experimental group on the initial and final Seashore Time Test were 25.80 and 33.80. The difference between these means yielded a "t" of 4.27 which was significant at the one per cent level of confidence.

The means for the experimental and control groups were 23.90 and 33.80. The difference between these means yielded a "t" of 3.33 which was significant at the one per cent level of confidence.

**Conclusion.**—The analysis and interpretation of findings seem to warrant the conclusion that music aptitude time test scores can be improved significantly through special musical training, thus rejecting the null hypothesis.

**Implication.**—The data of this study imply that students interested in participating in musical organizations in
the school should not be denied this opportunity, providing an effort is made to help them improve in this ability.

Recommendations.—The following are recommendations from the work done in this study:

1. That teaching be made available for helping students who are deficient in the ability to keep time in music, that is, improve in this trait.

2. That studies be conducted on other areas of musical talent to determine if improvement can be made with children the same age as those used in this study.

3. That studies be conducted to determine useful procedures in the attempt to improve musical abilities in the areas in which improvability has been demonstrated.
BIBLIOGRAPHY

Books


**Articles**


**Unpublished Theses**


Sherwood, Murial, "A Study to Determine the Relative Effectiveness of Two Methods of Teaching Vocal Music" (Unpublished Master's thesis, School of Education, Atlanta University, 1953), p. 10.
APPENDIX
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**SEASHORE MEASURES OF MUSICAL TALENTS**

(1939 REVISION)

**SERIES A**

**RHYTHM**

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BE SURE YOUR MARKS ARE HEAVY AND BLACK.

ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE.
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**BE SURE YOUR MARKS ARE HEAVY AND BLACK.**
**ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE.**
Do what it tells you to do,
until you are told to do so.
If you are asked about a birthday, etc. Write plainly.

Age last birthday years

Date 19

City

ink. It contains questions of different kinds. Here
is the word cation is underlined.
y cross has been put in the 3d
the questions.
Do not write the answer; just
y cross in the right circle.

Draw a line under the word
Try this one:
below is larger than 55?
516

should have drawn a line under 57

were not expected to be able to answer all of them, but
half an hour after the examiner tells you to begin.
be careful not to go so fast that you make mistakes
question. No questions about the test will be
begins. Lay your pencil down.

Ballet until you are told to begin.

1. Which one of the five things below does not belong with the others?
   - potato
   - turnip
   - carrot
   - stone
   - onion

2. Which one of the five answers below best what a sword is?
   - a tool
   - weapon
   - officer
   - a tool
   - knight

3. Which one of the five words below means the opposite of north?
   - east
   - star
   - south
   - pole
   - equator

4. The peeling is on a banana and the husk is on a corn the same as a shell is to what?
   - an apple
   - egg
   - juice
   - peach
   - hen

5. A child who knows he is guilty of doing wrong should feel
   - bad
   - sick
   - better
   - afraid
   - ashamed

6. Which one of the five things below is the largest?
   - knee
   - toe
   - leg
   - ankle
   - foot

7. Which one of the five words means the opposite of strong?
   - man
   - weak
   - small
   - short
   - thin

8. Which one is not like the other three?
   - chimney
   - stick
   - window
   - table
   - floor

9. Which one of the five things below is most like these three:
   - chair
   - bed
   - stove
   - chimney
   - stick

10. A knee is to a leg as an elbow is to what?
    - arm
    - shoulder
    - bone
    - wrist
    - hand

11. Which word means the opposite of joy?
    - sickness
    - bad
    - happiness
    - poor
    - cry

12. If I find a kind of plant that was never seen before, I have made
    - invention
    - adoption
    - creation
    - story
    - discovery

13. A sculptor is to a statue as an author is to
    - book
    - man
    - name
    - notebook
    - pen

14. At 3 cents each, how many pencils can be bought for 27 cents?
    - 27
    - 28
    - 33
    - 49
    - 50

15. Which one is not like the other three?
    - chimney
    - stick
    - window
    - table
    - floor

16. Which is the most important reason that words in the dictionary are arranged alphabetically?
    - It is the simplest arrangement.
    - It puts the shortest words first.
    - It enables us to find any word quickly.
    - It is a custom.
    - The printing is easier.

17. Which one of the five things below is most like these three:
    - saw
    - hammer
    - file
    - bottle
    - pen

18. If the following words were arranged in order, which word would be in the middle?
    - luncheon
    - dress
    - undress
    - supper
    - breakfast

19. The saying, "Don't count your chickens before they are hatched," means
    - Don't hurry.
    - Don't be too sure of the future.
    - Haste makes waste.
    - Don't gamble.
    - Don't raise chickens.

20. Which one is not like the other three?
    - chimney
    - stick
    - window
    - table
    - floor

21. A boy who often tells big stories about what he can do is said to
    - lie
    - fake
    - cheat
    - joke
    - brag

22. Which tells best just what a coils is?
    - an animal with hoofs
    - an awkward little beast
    - an animal that runs fast
    - a young horse
    - a little animal that eats hay

(Continue on to Page 2.)
41. A quantity which grows larger is said to —
   1. prosper 2. increase 3. fattens 4. rise 5. fall

42. A bicycle is to a motorcycle as a wagon is to what?
   1. an engine 2. an automobile 3. a horse 4. a sk
   5. an airplane

43. Which of the five things below is most like these three: a flag, a sail?
   1. a shoe 2. a ship 3. a staff 4. a towel 5. a rope

44. What is the most important reason that we use clocks?
   1. To wake us up in the morning 2. To help us catch tri
   3. To regulate our daily lives 4. They are ornamental
   5. So that children will get to school on time.

45. If the following words were rearranged to make a good sentence with what letter would the third word of the sentence be houses stone built of wood?
   1. h 2. e 3. s 4. m 5. w

46. Which of these expressions is the most definite?
   1. soon 2. early 3. later 4. morning 5. ten

47. A vase is to flowers as (?) is to milk.
   1. a cow 2. a pitcher 3. white 4. drink 5. eat

48. A lamp is to light as (?) is to a breeze.
   1. a fan 2. bright 3. a sailboat 4. a window 5. light

49. If the following words were arranged in order, which word would be in the middle?
   1. good 2. excellent 3. wretched 4. fair 5.

50. If Henry is taller than Tom and Henry is shorter than George is (?) Tom. 1. taller than 2. shorter than
   3. just as tall as 4. cannot say which

51. A king is to a kingdom as a president is to what?
   1. q 2. vice-president 3. senate 4. republic 5. dem

52. John is the fifth child from each end of a row. How many pupils are there in the row?
   1. ten 2. eleven 3. seven 4. nine 5. five.

53. Which tells best what an automobile is? 1. a thing with 2. something to travel on 3. an engine mounted on wheels 4. a horseless carriage 5. a vehicle propelled by an engine

54. Brick is to a wall as (?) is to a table.
   1. a chair 2. red 3. eat 4. a kitchen 5. w

55. A wire is to electricity as (?) is to gas.
   1. a flame 2. a spark 3. hot 4. a pipe 5. a

56. An object or institution that is designed to last only a time is said to be —
   1. temporary 2. changeable 3. unsound 4. worthless 5. unstable

57. Which word means the opposite of humility?
   1. joy 2. pride 3. dry 4. funny 5. reckless

58. A word that means suitable, fit, or proper is —
   1. grotesque 2. odd 3. inadequate 4. superfluous 5. appropriate

---

(1) to make a good sentence, the third word of the sentence would begin with a wall built stone

(2) these alike. Which one is not like a b c d e

(3) storm. This means sea in storms. 2. Stormy weather causes large waves in harbors.

(4) Ships usually sink in storms.

(5) Most like these three: cannon, ball, wire, penny

(6) ring, pencil, key

(7) alike. Which one is not like a b c d e

(8) Horse in the mouth. This means mouth of a horse. 2. You cannot judge the age of a gift horse by his teeth.

(9) Although you question the value of a gift, accept it graciously...

(10) ep. 4 a shepherd 5 a dog

(11) d to make a good sentence, what letter would the last word of the made tables wood 1 w 2 d 3 a 4 t 5 m.

(12) sides yield somewhat in their demands is called.

(13) an understanding 4 a deadlock 5 an armistice

(14) it are alike. Which one is not like a b c d e

(15) letter that comes next after M in the alphabet?

(16) series: 1 2 4 8 24 32 64 What should that number be?

(17) boxes in it and five very small boxes in each small box, how many boxes seven 3 ten 4 twelve 5 thirteen

(18) practice. 4 Don't practice.

(19) and 3 inches long is enlarged to 10 inches wide, how many inches 3 15 4 20 5 30

(20) 1 2 4 5 7 8 10 11 12 14 What should that number be?

(21) 5 16

(22) a similarity? The clock then said about 2 3 8 min. of 2 4 8 min. of 10 5 8 min. past 2

(23) radiator containing 1 quart of alcohol to every 2 quarts of water How for 15 quarts of the mixture?

(24) B C D A E B D 1 A 2 B 3 C 4 D 5 E

(25) now; pira seco means white snow; numa copa means very well.

(26) 2 numa 3 bega 4 copa 5 seco

(27) not belong with the others?

(28) 4 generous 5 loyal

(29) his sister. In 4 years he will be only twice as old. How many years old 3 4 5 6

(30) 90

---

(31) (Go on to Page 4 under Fe)
# STANFORD ACHIEVEMENT TEST

TRUMAN L. KELLEY • RICHARD MADDEN • ERIC F. GARDNER • LEWIS M. Terman • GILES M. RUCH

Name ______________________ Age ______ Grade ______ Boy or girl ______

Teacher ____________________ School __________________ Date of birth ______

City or Town ________________ State ________________ Date ________________

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### Individual Profile Chart

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<td>1 Par. Mean.</td>
<td>1 Par. Med.</td>
</tr>
<tr>
<td>2 Word Mean.</td>
<td>2 Word Med.</td>
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<tr>
<td>3 Spell.</td>
<td>3 Spell.</td>
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<tr>
<td>4 Lang.</td>
<td>4 Lang.</td>
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<tr>
<td>5 Arith. Reas.</td>
<td>5 Arith. Reas.</td>
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<tr>
<td>6 Arith. Comp.</td>
<td>6 Arith. Comp.</td>
</tr>
</tbody>
</table>

Grade equivalent values above 10.0 are extrapolated values and not to be interpreted as signifying the typical performance of pupils of the indicated grade placement. (See Directions for Administering.)

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TEST 1  Paragraph Meaning

DIRECTIONS: Read each paragraph below. Decide which one of the numbered words at the right is best for each blank, and then mark the answer space which is numbered the same as the word you have chosen. Study the sample below, and answer the other questions in the same way.

SAMPLE: I am shorter than my sister and taller than my brother. 
This morning we stood beside one another. I looked down at my and at my sister.

1 The children went to the circus. They saw elephants and monkeys and many other animals. There were many clowns and lots of popcorn and peanuts. The children said that they wished a would come every day.

2-3 The gold used for jewelry is mixed with another metal, usually copper. Pure gold is very soft, and jewelry made of it would not wear well. Therefore, copper or some other is mixed with the gold to make it .

4-5 Insects that fly at night often make mistakes. It may be that they cannot tell the light of the moon from that given by an open fire. Sometimes these fly into a and are killed.

6 I go to bed at seven o'clock. Bob stays up until eight. We both rise at seven o'clock in the morning. Bob sleeps an hour than I do.

7-8-9 Wool is clipped from live sheep by a process called shearing. The entire mat of fleece from each animal comes off in a single piece. With electric clippers one man can from 150 to 200 a day. After shearing, the is rolled up and sent to the mill.

10-11-12-13 A few years ago most freight was carried by railroad trains. Now such things as furniture and even automobiles are sent across country on trucks. Goods sent by can go only where have been laid, but goods sent by can reach any point to which a runs.

14-15 A long time ago the people of Peru did not know how to write. In order to count, they tied knots in threads of different colors. Each color meant a different kind of thing. The in a thread stood for the things being .
16-17-18 The dog, first domesticated during the Old Stone Age, belongs to the same family as the wolf, jackal, and fox. It is believed that some breeds of dogs resulted from crossing two of these three animals, but perhaps not all dogs had the same ancestors. Many breeds have developed since the 16. It is hard to see anything of the 17 in the barkless dog of the North American Indians, or any kinship between the 18 and the cocker spaniel.

19-20 Ventriloquism is the art of making sounds so that they appear to come from a distance rather than from the speaker's own mouth. It is an ancient 19, and many authorities believe that various phenomena such as the Greek oracles and the Egyptian speaking statues owe their explanation to the practice of 20 by the priests.

21-22 Crude oil from wells in Texas and other Western states is now transported in pipes to refineries in such distant states as California, Illinois, and Pennsylvania. Pumping stations are located 25 to 40 miles apart along each pipe line. From storage tanks near the wells the oil passes into the 21 and is 22 to the refineries.

23-24-25 A common example of a chemical reaction is the rusting of iron. A gas called oxygen which is present in the air combines with the silvery metal iron to form a reddish brown substance known in chemistry as ferrous oxide, but commonly called 23. This substance is quite different from either the 24 or the 25 which combined to form it.

26 During the French and Indian War more than one hundred English colonists were captured by the Indians at Deerfield, Massachusetts, and taken into the forest. Later, some were ransomed but many refused to return to 26.

27-28-29 Architectural styles are the result of social, technical, and environmental factors. The flat-roofed houses of the Egyptians and the Aztecs were practical because of dry climates. This illustrates the 27 factor. For heavy structures both peoples used the pyramid, rather than beams, buttresses, girders, etc. This illustrates the 28 factor. The decorations of these two peoples were widely different because of traditions and aesthetic standards. This illustrates 29 the 29 factor.

30-31-32 The windward side of a great mountain chain has plenty of rainfall, whereas the regions on its lee are more arid. This difference is due to the fact that when prevailing winds strike high mountains, precipitation occurs and relatively little moisture is carried over the crest. Thus, the regions lying on the 30 side of mountain chains are better suited to 31 than those protected from the 32.
33-34 A dinosaur called “stegosaurus” had a brain-like nerve center inside his skull, and another, larger one in the region of the pelvis. This latter controlled the reptile’s heavy tail, which was armed with horn-like spines. Because of the dominance of the rear, scientists jokingly ask whether the wagged his tail, or vice versa.

35-36-37 Much of the history of man might be written in terms of ocean currents. The warm Gulf Stream contributes so much to the temperatures of England and northern Europe that if somehow it could be cut off, the region of the British Isles would be nearly uninhabitable. The mass of frigid arctic water helps bend the to take a direction and is itself prevented from reaching the.

38-39 The noun radical comes from the Latin word for root. A radical is something fundamental, or at the root of things. One who wishes to upset the government is a radical because he wishes to make fundamental changes. In chemistry the fundamental parts of a compound are radicals. Recently a critic of radicalism denounced a professor’s book entitled “Organic Radicals in the Presence of Catalysts.” It is reasonable to assume that the subject matter of the book was. A dictionary would inform one that catalysts are chemical agents and not foreign agents. The critic should conclude that the book was.

40 Unusual meanings are sometimes attached to words. For as long as we have a record, “seeding” has meant putting seeds into the ground to grow into mature plants. “Cloud seeding” is an attempt to.

41-42 Myths are imaginary tales and have for their heroes gods and goddesses. In fables animals talk and have the characteristics of human beings. Apollo, the sun-god, figures prominently in many Greek. The story of the “Dog in the Manger” is one of the most familiar.

43-44 Symbiosis is a very interesting biological phenomenon. It is the intimate living together of two different forms of life. For example, the Yucca, a desert plant, has its pollen carried from one flower to another by the Yucca moth only. This moth lays its eggs in a Yucca seed pod; the eggs hatch; the larvae eat some seeds and nothing else; they turn into moths, get covered with pollen, fly to a second Yucca blossom, carrying the pollen and fertilizing the seeds of the second plant. Thus. The scientific term for wonderful cases like this is.
**TEST 2  Word Meaning**

DIRECTIONS: In each exercise decide which of the four numbered words will complete the sentence best. Look at the number of this word. Mark the answer space at the right which is numbered the same as the word you have chosen. Study the samples.

**SAMPLES:**

1. The day that comes after Friday is — 1 Monday 2 Tuesday 3 Saturday 4 Sunday

2. To draw on a blackboard, use a piece of — 1 pencil 2 straw 3 eraser 4 chalk

1. Mary Smith and John Doe are cousins if they have the same — 1 grandmother 2 mother 3 sister 4 daughter

2. Marvelous means — 1 pleasant 2 distant 3 wonderful 4 great

3. To lash is to — 1 deceive 2 whip 3 destroy 4 waste

4. Anyone over 21 years old is — 1 a graduate 2 an adult 3 a major 4 a patriot

5. If you can identify a butterfly, you can — 1 exhibit it 2 stuff it 3 mount it 4 recognize it

6. Something you must do, such as paying taxes, is — 1 a custom 2 a sacrifice 3 a duty 4 an opportunity

7. Height, weight, and temperature are all — 1 distances 2 visible 3 feelings 4 measurements

8. Groceries arranged to attract customers are — 1 displays 2 campaigns 3 evidence 4 bargains

9. To attempt a job is to — 1 condemn it 2 oppose it 3 imagine it 4 undertake it

10. Things which are much alike are — 1 equal 2 handsome 3 similar 4 opposite

11. A small thing given as evidence of good faith is a — 1 petition 2 spindle 3 token 4 goblet

12. A person elected to office should be — 1 confused 2 pitied 3 capable 4 noble

13. When you don't sense anything which is going on about you, you are — 1 unconscious 2 sullen 3 prosperous 4 sensible

14. The group of men who run a business are its — 1 managers 2 customers 3 salesmen 4 engineers

15. Saving money for a "rainy day" is — 1 likable 2 industrial 3 fearful 4 advisable

16. People who write letters to each other — 1 correspond 2 translate 3 interrupt 4 interview

17. The dead body of a wild animal is a — 1 vestige 2 carcass 3 corpuscle 4 corruption

18. When you have learned your next lesson well, you are — 1 mistaken 2 prepared 3 discouraged 4 educated

19. Any statement about which there is question is — 1 vagrant 2 elastic 3 appreciable 4 debatable

20. When a person repeatedly fails at something he wants to do, he may become — 1 buoyant 2 frustrated 3 fruitless 4 drenched

21. Something written about or talked about is — 1 a token 2 a topic 3 a title 4 an article

22. If you have made up your mind about something, you have — 1 a conviction 2 an investigation 3 a sermon 4 a doubt

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Go on to the next page.
<table>
<thead>
<tr>
<th>No.</th>
<th>Word Meaning (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Clothing of any kind is called — 1 woolens 2 apparel 3 robes 4 draperies</td>
</tr>
<tr>
<td>24</td>
<td>Money wasted foolishly is — 5 proffered 6 severed 7 scandalized 8 squandered</td>
</tr>
<tr>
<td>25</td>
<td>If everybody agrees upon a plan, the agreement is — 1 unanimous 2 moderate 3 proportional 4 conscientious</td>
</tr>
<tr>
<td>26</td>
<td>An individual who insists upon doing things his way only is — 5 nimble 6 obstinate 7 kingly 8 towering</td>
</tr>
<tr>
<td>27</td>
<td>When a man seeks a position with a certain firm, he becomes — 1 an applicant 2 a suitor 3 a petitioner 4 a contractor</td>
</tr>
<tr>
<td>28</td>
<td>A dramatic event in a story is called — 5 an epistle 6 a nucleus 7 a novelette 8 an episode</td>
</tr>
<tr>
<td>29</td>
<td>&quot;She has a good chance to recover&quot; means that improvement is — 1 certain 2 assured 3 impossible 4 probable</td>
</tr>
<tr>
<td>30</td>
<td>A difficulty to be overcome is — 5 an obstacle 6 a miracle 7 a vehicle 8 a barnacle</td>
</tr>
<tr>
<td>31</td>
<td>The way an army executes its campaigns is called its — 1 enmity 2 eclipse 3 tactics 4 treatise</td>
</tr>
<tr>
<td>32</td>
<td>A beginner in some sport is — 5 a novice 6 a professional 7 a private 8 an assailant</td>
</tr>
<tr>
<td>33</td>
<td>In a story meant to teach something, the teaching is called the — 1 fable 2 myth 3 plot 4 moral</td>
</tr>
<tr>
<td>34</td>
<td>One who works hard is — 5 brazen 6 alluring 7 ancestral 8 diligent</td>
</tr>
<tr>
<td>35</td>
<td>A daily newspaper calls the number of papers it sells each day its — 1 administration 2 attraction 3 circulation 4 introduction</td>
</tr>
<tr>
<td>36</td>
<td>Any very long, unpleasant experience is — 5 an ordeal 6 an offense 7 a vigil 8 a seclusion</td>
</tr>
<tr>
<td>37</td>
<td>One senator speaks of another senator as his — 1 collector 2 elector 3 colleague 4 chaplain</td>
</tr>
<tr>
<td>38</td>
<td>Spotlessly clean clothes are — 5 blanched 6 immaculate 7 stark 8 purged</td>
</tr>
<tr>
<td>39</td>
<td>A small event that is part of a story is — 1 a plot 2 an epic 3 an incident 4 an era</td>
</tr>
<tr>
<td>40</td>
<td>Any national issue over which there is disagreement is — 5 controversial 6 contraband 7 tabu 8 subversive</td>
</tr>
<tr>
<td>41</td>
<td>Corrupt politics are due largely to public — 1 responsiveness 2 antagonism 3 degradation 4 indifference</td>
</tr>
<tr>
<td>42</td>
<td>To destroy something completely is to — 5 detract it 6 distort it 7 annihilate it 8 depress it</td>
</tr>
<tr>
<td>43</td>
<td>A very exact measurement is — 1 absolute 2 concise 3 precise 4 fundamental</td>
</tr>
<tr>
<td>44</td>
<td>The &quot;crossing&quot; of two or more kinds of grain produces — 5 mongrels 6 hybrids 7 formulas 8 chaff</td>
</tr>
<tr>
<td>45</td>
<td>An interesting conversationalist often has a store of — 1 denominations 2 anecdotes 3 alibis 4 conveyances</td>
</tr>
<tr>
<td>46</td>
<td>Sometimes an opinion on a subject is changed after — 5 consternation 6 delegation 7 dissolution 8 deliberation</td>
</tr>
</tbody>
</table>
DIRECTIONS: In each exercise below, one of the words is spelled in three different ways. If the correct spelling is there, mark the answer space which has the same number as the correct spelling. If the correct spelling is not given as one of the three spellings, mark the answer space under NG as the right answer; NG stands for not given.

SAMPLES:
17 Don't be 2 impatient...
3 impatient.
4 horse.
18 John's voice is 5 horse.
6 hoarse.
19 a tennis 2 tournament...
3 tournament.
20 He 5 really liked it.
6 really
4 realey
21 It rains 2 frequently...
3 frequently.
4 unfortunate
22 an 5 unfortunate mistake...
6 unfortunette
23 We read 2 literature...
3 literature.
4 generally
24 Ruth is 5 generally here...
6 generally
1 rarely
25 Father 2 rarely goes hunting...
3 rarely
4 berres
26 The 5 berries are ripe...
6 berries
1 prittiest
27 We saw the 2 prittest flowers...
3 pretest.
4 philosophy.
28 My uncle studies 5 philosophy...
6 philosophy.
1 available.
29 No chairs were 2 available...
3 available.
4 majority
30 Anne has a 5 majority vote...
6 majorety
1 eventually
29 Sue 2 eventually arrived...
3 eventually
4 ignorant
32 He is 5 ignorant of the facts...
6 ignorant
1 offensive
33 the 2 offensive team...
3 offensive
4 vicinity.
34 We saw him in the 5 vicinity...
6 visinity.
1 apparent.
35 No cause was 2 apparent...
3 apparent.
4 territorry
36 in friendly 6 territorry...
6 territorry
27 Chemistry is a 5 scince...
3 science.
28 Jane is respected for her 5 sincerety...
6 sincerety.
39. The moon enters a new phase.

40. He is a college professor.

41. Very conscious of his duty.

42. The scene is picturesque.

43. Wired for electricity.

44. The two lines are parallel.

45. The firm was a financial success.

46. Such an idea is absurd.

47. The loss is insignificant.

48. Such an idea is absurd.

49. Perhaps I imagine it.

50. The blizzard brought snow.

51. It is not necessarily wrong.

52. Alice did not apologize.

53. The task was done with facility.

54. Betty made prior arrangements.

55. Jim ate a hot biscuit.

56. It is a fundamental rule.

57. My conscience is clear.

58. A scarcity of food.

59. It is a boy's club initiation.

60. The cost of admission is low.

61. An aerial is on the roof.

62. The ship was immense.

63. We are privileged to help.

64. Dan will pay the expenses.

65. A comparatively small one.

66. The vote was unanimous.

67. The indebtedness is heavy.

68. The answer is logical.

69. Bob had a fine recommendation.

70. A cough from bronchitis.

71. The meeting was adjourned.

72. To perceive the truth.

Stop.
DIRECTIONS: In each pair of words in heavy type there is an error in either capitalization or punctua-
tion. You are to decide which one of each pair has the correct capitalization and punctuation. Then mark the answer space at the right that has the same number as the correct form.

SAMPLES: This is 1 Mr. Jones. 2 Mr. Jones. 3 St. Louis, Missouri 4 St. Louis Missouri

A MUSICAL PROGRAM

We heard 1 Beethoven's 2 Beethoven's. 3 “Sixth Symphony” 4 “Sixth Symphony” on the Symphony Hour.

Featured instruments were:

A. The strings 1 Strings 2 Strings

B. Flutes and other Woodwinds 1 Flutes and other woodwinds

“This symphony,” the announcer said,

3 “Describes” 4 “Describes a storm.”

A GOOD PLAY

In our play my friend 1 Sam 2 Sam acted the part of Rip Van Winkle.

1 “I'll get enough sleep for once,” he said. 2 “I'll get enough sleep for once,” he said.

3 “Good” 4 good. 5 good some

Our play was 1 good. 2 good. Some

people wanted to see it 1 again. 2 again.

For the answer, turn to the third chapter.

Freedom of speech was 1 Jeffersonian ideal. 2 Jeffersonian ideal. 3 Jeffersonian ideal.

5 Democrats, and Republicans approved. 4 Democrats, and Republicans approved. 6 Democrats, and Republicans approved.

This notebook represents two months work. 1 month's work. 2 month's work.

We had a heavy storm, an inch of rain fell. 1 storm, 4 storm; an inch of rain fell.

“The storm struck suddenly,” our paper reported. 1 suddenly, 4 suddenly, our paper reported.

We have 1 Arithmetic 2 Arithmetic and English every day.

The president, it 1 seems, has called a meeting.

DIRECTIONS: Decide whether each of the sentences below is simple (only one thought), compound (two independent clauses), or complex (one clause subordinate to another). Mark the answer space under S if the sentence is simple, CD if it is compound, and CX if it is complex. Mark only the one that tells what form the sentence is.

Our school offers a course in printing.

My cousin and I are taking it now.

My cousin got a B, and I got an A.

Orville Wright and his brother Wilbur built the first successful airplane.

Before 1920, people did not have radio sets.

Before radio became popular, children read more books.

Pioneer women made soap from fat which they had saved.

One kind of palm tree from which many useful products are obtained is the coconut palm.

DIRECTIONS: If the word in heavy type is the subject of the sentence, mark the answer space under S. If it is the verb, mark the answer space under V.

This land has been plowed.

That plane will soon land.

For these men, working brought its reward.

These men are working to finish their job.

Where does that light come from?

Light streamed in the windows.

Go on to the next page.
DIRECTIONS: In each sentence, decide which of the numbered words is correct. Then mark the answer space at the right which has the same number as the word you have chosen.

Bob and 1 2 me painted the scenery.
He 3 doesn't watch where he's going.
Where 5 are my books?
Our team will win this game 1 easy.
Each of us 4 ought to work faster.
Is this the 5 right 6 write road?
Nancy can certainly read 1 good.
I might 3 of 4 have gone if I'd been asked.
Take a picture of Helen and 5 L.
Some of us were 1 lying 2 laying on the ground.
3 whose 4 Who's sweater is this?
The girls have all 5 run 6 ran away.
Tell me when 1 your 2 you're ready.
Miss Martin is 3 too 4 to busy to see us.
The dog is looking for 5 it's 6 its master.
Have you 1 drunk your milk?
My kitten was 3 drowned.
Last 5 weak 6 week they took a trip.
The baby had 1 fell 2 fallen downstairs.
Most people like to eat 3 regular.

Both the cat and the dog 5 have 6 has fleas.
We are 1 all ready 2 already late.
I 3 can 4 can't hardly wait to see him.
Everybody wants 5 his 6 their own coat.
The birds had all 1 flew 2 flown South.
A girl 3 who 4 which giggles is a nuisance.
They fought a 5 strange 6 funny battle.
It was cold in the house 1 with 2 without no heat.
The captain 3 led 4 lead his men to victory.
A boy 5 who 6 whom I knew got lost.
Have you ever 1 shook 2 shaken apples from a tree?
We've driven 3 all the farther 4 as far as.
Treat me 5 as if I were 6 like I was your sister.
The ship 1 sank 2 sunk before help could reach it.
Do you like 3 whip 4 whipped cream?
There are 5 less 6 fewer boys than girls here.
This picture is the 1 better 2 best of the two.
The explosion had 3 burst 4 bursted open the door.
I 5 reckon 6 suppose they will serve refreshments.
A bellhop is 1 where a boy 2 who carries baggage.
Here 3 come 4 comes your sister and my brother.
At the corner I stopped very 5 sudden 6 suddenly.

Stop.
No. right ( ) x 2 ( )
No. omitted or double-marked ( )
Sum ( )
Subtract 74

DIFFERENCE (R-W) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Gr. score 19 22 25 28 30 33 35 37 39 41 43 45 47 49 50 52 54 56 58 60 62 63 65 66 67 68 69 70 72 73 74 75 76 78 80 82 84 85 86 88

DIFFERENCE (R-W) (Cont'd) 41 43 44 45 46 47 48 49 50 52 54 56 58 60 62 63 65 66 67 69 70 72 73 74 75 76 78 80 82 84 85 86 88
Gr. score 90 93 96 99 101 104 107 108 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129

[ 10 ]
DIRECTIONS: Work an example, and then compare your answer with the answers which follow it. If your answer is one of those given, mark the answer space that has the same letter as your answer. Sometimes the correct answer is not given. If you do not find the correct answer, mark the space under the letter for not given.

SAMPLES:  
61 How many balls are 3 balls and 4 balls?  
   a 3 b 4 c 7 d 12 e not given .............. 61  
62 How many books are 3 books and 2 books?  
   f 2 g 3 h 4 i 6 j not given .............. 62

1 Judy has 16 jacks and Hazel has 9. How many more jacks has Judy than Hazel?  
   a 7 b 9 c 16 d 25 e not given .............. 1  
2 Mother bakes 24 rolls at a time. How many pans will she need if she bakes 6 in a pan?  
   f 4 g 18 h 24 i 30 j not given .............. 2  
3 A strip of paper 19 inches long is to be cut so that one piece will be a foot long. How long will the other piece be?  
   a 5 in. b 12 in. c 19 in. d 31 in. e not given .... 3

4 A cake costs 73 cents. How much change will Mother get back if she gives the baker two half dollars?  
   f 23¢ g 27¢ h 37¢ i $1.00 j not given .............. 4  
5 A lock for the clubhouse will cost $1.35. What will be each boy's share if 9 boys share equally?  
   a 9¢ b 14¢ c 15¢ d $12.15 e not given .............. 5  
6 Ruth weighs 78 pounds, Helen weighs 54, and Ann weighs 67. How many pounds will Ann have to gain to weigh as much as Ruth?  
   f 11 g 13 h 24 i 78 j not given .............. 6

7 Ann bought 6 yards of ribbon to tie two packages. For one package she used 3 yards and 2 feet. How much ribbon was left for the other package?  
   a 3 yd. b 3 yd. 1 ft. c 3 yd. 2 ft. d 9 yd. 2 ft. e not given .............. 7

8 You know how much a man is paid per hour. You know how many hours he worked in a week. To find his earnings for the week, what would you do?  
   f add g subtract h multiply i divide j not given .............. 8

9 How much would Steve get in all for selling 11 papers at 7¢ each and 3 magazines at 20¢ each?  
   a 27¢ b 77¢ c $1.27 d $1.37 e not given .............. 9

10 Each class in a school agreed to collect \( \frac{1}{6} \) of 300 cans of food for Thanksgiving baskets. How many cans would each class have to collect?  
   f 50 g 60 h 180 i 240 j not given .............. 10

11 Tom runs errands for 15¢ each. If he averages 15 errands a month, what is his monthly income?  
   a 15¢ b 30¢ c $1.50 d $2.25 e not given .............. 11  

12 The heights of five boys are 60 inches, 67 inches, 66 inches, 62 inches, and 60 inches. If they lined up according to height, how tall would the middle boy be?  
   f 60 in. g 62 in. h 63 in. i 66 in. j not given .............. 12

13 Candy eggs are 2 for 5¢. How many can be bought for 50¢?  
   a 10 b 20 c 25 d 30 e not given .............. 13

14 For a picnic, a class bought 4 dozen buns at 22¢ a dozen and 3 packages of marshmallows at 32¢ a package. How much did the buns and marshmallows cost all together?  
   f 88¢ g 96¢ h $1.74 i $1.84 j not given .............. 14

Go on to the next page.
15. When the Smiths go to the movies, Jane takes care of their baby and earns 50¢ an hour. How much should she receive for staying one evening from 7 P.M. to 10:30 P.M.?

- a 50¢
- b $1.50
- c $1.75
- d $2.50
- e not given

16. A pancake recipe for 6 persons calls for 2$ cups of pancake mix. How many cups will it take for 3 persons?

- f $1 \frac{1}{4}
- g 1 \frac{3}{4}
- h 2 \frac{1}{2}
- i 3 \frac{3}{4}
- j not given

17. Bill jumped 13 feet 5 inches on Tuesday. On Thursday he jumped 11 feet 9 inches. How much farther did he jump on Tuesday than on Thursday?

- a 1 ft. 2 in.
- b 1 ft. 4 in.
- c 1 ft. 6 in.
- d 2 ft. 4 in.
- e not given

18. A Scout troop bought 24 uniforms for $194.40. What was the cost per uniform?

- f $8.10
- g $8.95
- h $9.92
- i $9.95
- j not given

19. Pine City is 120 miles from Milton. To go from Pine City to Milton by bus takes 4 hours and by train only 2 \frac{3}{4} hours. How many hours less does it take to go by train?

- a 1 \frac{1}{4}
- b 1 \frac{3}{4}
- c 2 \frac{1}{4}
- d 3 \frac{3}{4}
- e not given

20. How many 1-inch by 2-inch pieces of candy can be cut in a pan which is 8 inches by 10 inches?

- a 20
- b 36
- c 40
- d 50
- e not given

21. Dan says there are 2 quart and 2 pint packages of ice cream for the party. How many people will all of it serve if a pint serves 4 people?

- a 4
- b 12
- c 16
- d 24
- e not given

22. A scale drawing reads “1 inch = 12 inches.” A line 3\frac{1}{2} inches long on this drawing represents how many actual inches?

- f 12
- g 15 \frac{1}{4}
- h 27
- i 39
- j not given

23. The butcher says to cook a turkey 20 minutes for each pound. At what hour should a 15-pound turkey be started in order to be done at 12 o'clock noon?

- a 6 A.M.
- b 8 A.M.
- c 9 A.M.
- d 10 A.M.
- e not given

24. If campers start 2000 forest fires each year and tobacco smokers start 5000, how many times as many fires are started by tobacco smokers as by campers?

- f \frac{2}{1}
- g 2 \frac{1}{2}
- h 5
- i 10
- j not given

25. George wants to buy a board to saw into 8 pieces 1\frac{1}{2} feet long. If he ignores the waste in sawing, how long will the board have to be?

- a 9 \frac{3}{4} ft.
- b 14 ft.
- c 16 ft.
- d 56 ft.
- e not given

26. Mr. Wilson is going to buy 60 pounds of mixed grass seed. He says the mixture should be 1 part clover, 2 parts bluegrass, and 3 parts rye. How many pounds of the mixture will be bluegrass seed?

- f 6
- g 10
- h 20
- i 30
- j not given

27. A club has an income of $50. Of this, $20 is budgeted for food. What per cent does the club budget for food?

- a 10
- b 20
- c 25
- d 40
- e not given

28. If the sales tax is 3%, what is the tax, to the nearest cent, on a coat which costs $27.60?

- f 81¢
- g 93¢
- h 84¢
- i 92¢
- j not given

29. If a man earns $80 in a week and has deductions of 1% for unemployment insurance, 1\frac{1}{2}% for old-age security, and $12 for income tax, how much does he have left?

- a $65.50
- b $66
- c $67.80
- d $67.97
- e not given

30. The speed of sound is about 1100 feet per second. Bob sees lightning and then hears it thunder 20 seconds later. To the nearest mile, how many miles away was the lightning?

- f 4
- g 6
- h 8
- i 10
- j not given

Go on to the next page.
DIRECTIONS: The answer to each of these examples can be thought out without doing any figuring on paper. You are to think out the answer and mark the answer space that is lettered the same as your choice.

31 Without working the examples, choose the one in which the quotient will be largest.
   a 19)838  b 19)840  c 19)934  d 19)937  
   e 1089  f 1980  g 9801  h 1908

32 In which number is the 8 in the hundreds position?
   a 19)838  b 19)840  c 19)934  d 19)937
   e 1089  f 1980  g 9801  h 1908

33 Which is the smallest fraction?
   a \( \frac{1}{10} \)  b \( \frac{1}{50} \)  c \( \frac{1}{100} \)  d \( \frac{1}{5} \)

34 Without measuring, tell how many inches long this line is.
   a 1  f 2  g 3  h 4

35 How much is 19.7 rounded off to the nearest whole number?
   a 19  b 19  c 20  d 197

36 A loan which has real estate to guarantee its payment is —
   e interest  f stock  g capital  h a mortgage

37 A kind of insurance which protects against lawsuits for damage is —
   a annuity  b liability  c theft  d marine

38 By estimation, choose the example which will have the smallest product.
   e 806  f 8.06  g 80.6  h 8.06
   e 4.50  f 45.0  g 4.50  h 4.50

39 \( \sqrt{64} = \)
   a 8  b 32  c 64  d 4096

40 How much is 150% of 20?
   e 3  f 7.5  g 30  h 75

41 Which line is horizontal?
   a \( \parallel \)  b \( / \)  c \( \| \)  d

42 If \( b \) is the base of a triangle and \( a \) is its altitude, the area of the triangle is —
   e \( \frac{1}{2}ab \)  f \( ab \)  g \( a+b \)  h \( 2ab \)

43 17.5% is equal to the decimal —
   a .175  b 1.75  c 17.05  d 17.50

44 By estimation, choose the example whose quotient will be smaller than 1.
   e 126)127  f 138)137.2  g 156.3)157  h 125)125

45 Which is the same as \( 4 \) less than 5 times a number = 21?'
   a 4 - 5 = 21  b \( \frac{5N}{4} = 21 \)  c 21 \times 5 - 4 = N  d 5N - 4 = 21
Directions: Work each example. Then compare your answer with the answers given at the right of the example. If your answer is one of those given, mark the answer space that has the same letter as your answer. Sometimes the correct answer is not given. If the correct answer is not given, mark the answer space under the letter for not given. Look carefully at each example to see what it tells you to do. If you need to do any figuring, use a separate sheet of paper.

1. Multiply

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
450 & 3050 & 3100 & 3150 & 3157 & \text{not given} \\
7 & & & & & \\
\end{array}
\]

2. Add

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
$4.80 & $13.45 & $13.55 & $14.55 & $15.45 & \text{not given} \\
9.65 & & & & & \\
\end{array}
\]

3. Subtract

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
$5.00 & $.52 & $.62 & $1.48 & $1.52 & \text{not given} \\
4.48 & & & & & \\
\end{array}
\]

4. \(43\overline{66}\)

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
2 & 3 & 11 & 20 & \text{not given} \\
\end{array}
\]

5. Add

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
854 & 1686 & 1696 & 1706 & 1796 & \text{not given} \\
759 & 1696 & 1706 & 1796 & \text{not given} \\
47 & 1706 & 1796 & \text{not given} \\
36 & & & & & \\
\end{array}
\]

6. Multiply

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
75 & 89 & 1010 & 1040 & 10,520 & \text{not given} \\
14 & & & & & \\
\end{array}
\]

7. Subtract

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
871,653 & 475,868 & 484,968 & 485,868 & \text{not given} \\
396,785 & & & & & \\
\end{array}
\]

8. \(34\overline{748}\)

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
19 & 22 & 24 & 112 & \text{not given} \\
\frac{5}{12} & & & & & \\
\end{array}
\]

9. Multiply

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
310 & 613 & 7130 & 62,930 & 64,960 & \text{not given} \\
203 & & & & & \\
\end{array}
\]

10. Subtract

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
8\frac{1}{2} & 1\frac{7}{10} & 14 & 15 & \text{not given} \\
7\frac{7}{8} & 1\frac{11}{15} & 15\frac{14}{15} & & & \\
\end{array}
\]

11. Add

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
\frac{1}{6} & \frac{1}{12} & 1 & 2 & \text{not given} \\
\frac{1}{6} & & & & & \\
\end{array}
\]

12. \(\frac{3}{4} \times 3\frac{3}{4} = \)

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
3 & 3 & 3 & \text{not given} \\
\frac{5}{12} & & & & & \\
\end{array}
\]

13. \(6 \div 2\frac{3}{8} = \)

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
\frac{1}{15} & \frac{3}{5} & 3 & 15 & \text{not given} \\
\frac{5}{8} & & & & & \\
\end{array}
\]

14. \(4\% \text{ of } $800 = \)

\[
\begin{array}{cccccc}
\text{f} & \text{g} & \text{h} & \text{i} & \text{j} \\
$32 & $200 & $320 & $804 & \text{not given} \\
\$200 & & & & & \\
\end{array}
\]

15. Add

\[
\begin{array}{cccccc}
\text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
3\frac{3}{4} & 2\frac{5}{12} & 2\frac{3}{6} & 2\frac{1}{2} & \text{not given} \\
2\frac{1}{12} & & & & & \\
\end{array}
\]

Go on to the next page.
16 \[ .2 \times .12 = f .024 \quad g .06 \quad h .6 \quad i 24 \quad j \text{ not given} \]

17 Add 4474.59  
7669.98  
90.67  
698.56  
---
20116.2  
\[ a 12,022.80 \quad b 12,822.90 \quad c 12,931.80 \quad d \text{ not given} \]

18 \[ 6)5424 \]
\[ f 84 \quad g 94 \quad h 904 \quad i 940 \quad j \text{ not given} \]

19 Selling Price = $250  
Rate of Commission = 4%  
Commission = ?  
---
\[ a \text{ not given} \]

20 \[ 8.16 \]
\[ f .002 \quad g .2 \quad h 2 \quad i 20 \quad j \text{ not given} \]

21 Subtract \[ 3 \frac{4}{5} \]
\[ 3 \frac{3}{5} \]
\[ a 0 \quad b \frac{1}{3} \quad c \frac{7}{15} \quad d 6 \frac{13}{15} \quad e \text{ not given} \]

22 \[ 4 \frac{2}{3} \times 3 \frac{4}{5} = f 7 \frac{1}{2} \quad g 12 \quad h 12 \frac{1}{3} \quad i 15 \quad j \text{ not given} \]

23 If \( d + 5 = 15 \), \( d = \)  
\[ a 3 \quad b 10 \quad c 20 \quad d 75 \quad e \text{ not given} \]

24 \[ \frac{5}{8} + \frac{3}{10} = f \frac{3}{10} \quad g \frac{4}{9} \quad h \frac{12}{25} \quad i 2 \frac{1}{12} \quad j \text{ not given} \]

25 What per cent of the grass seed is rye?  
\[ a 38\% \quad b 40\% \quad c 60\% \quad d 62\% \quad e \text{ not given} \]

26 How many times as much bluegrass is there as clover?  
\[ f 2 \quad g 8 \quad h 16 \quad i 18 \quad j \text{ not given} \]

A Grass Seed Mixture

27 Subtract 11 ft. 4 in.  
8 ft. 8 in.  
---
\[ a 2 ft. 6 in. \quad b 2 ft. 8 in. \quad c 3 ft. 4 in. \quad d \text{ not given} \]

28 Add 4 hr. 27 min.  
4 hr. 36 min.  
3 hr. 38 min.  
---
\[ f 11 hr. 41 min. \quad g 12 hr. 1 min. \quad h 12 hr. 31 min. \quad i \text{ not given} \]

29 On which day of these two weeks were the most pupils absent?  
\[ a \text{ Tues.} \quad b \text{ Wed.} \quad c \text{ Thurs.} \quad d \text{ Fri.} \quad e \text{ not given} \]

30 How many more pupils were absent on Wednesday of this week than on Thursday of last week?  
\[ f 2 \quad g 5 \quad h 6 \quad i 9 \quad j \text{ not given} \]

31 Find the average 16 ft.  
32 ft.  
12 ft.  
---
\[ a 12 ft. \quad b 12 \frac{1}{2} \quad c 16 ft. \quad d 20 ft. \quad e \text{ not given} \]

Go on to the next page.
32 \( \sqrt[4]{3} \)  \( f \cdot 0.75 \)  \( g \frac{3}{4} \)  \( h \cdot 7.5 \)  \( i \cdot 7.5 \)  \( j \) not given

33 Add 21 m. 66 cm.  \( a \) 53 m. 38 cm.  \( b \) 54 m. 38 cm.  \( c \) 65 m. 8 cm.  \( d \) 66 m. 8 cm.  \( e \) not given

34 If \( A = bh \), what is the area of the parallelogram shown at the left?  \( f \) 32  \( g \) 36  \( h \) 160  \( i \) 1620  \( j \) not given

35 If 10% of an amount is 25\( \frac{\pi}{2} \), what is the amount?  \( a \) 2.5\( \frac{\pi}{2} \)  \( b \) 25\( \frac{\pi}{2} \)  \( c \) 40\( \frac{\pi}{2} \)  \( d \) $2.50  \( e \) not given

36 \( \frac{2}{6} = \frac{1}{?} \)  \( f \) 3  \( g \) 5  \( h \) 7  \( i \) 12  \( j \) not given

37 If 5\( r + 2 = 37 \), \( r = \)  \( a \) 5  \( b \) 7  \( c \) 30  \( d \) 35  \( e \) not given

38 Assessed Valuation = $2000  

Tax Rate per $100 = $4.50  

Amount of Tax = ?  \( f \) $9  \( g \) $15.50  \( h \) $90  \( i \) $2450  \( j \) not given

39 \( -24 = \)  \( a \) -24  \( b \) -8  \( c \) 8  \( d \) 21  \( e \) not given

40 Multiply \( -3y \)  \( -4 \)  \( f \) 12\( y \)  \( g \) -12\( y \)  \( h \) 12  \( i \) -12  \( j \) not given

41 Principal = $400  

Annual Interest = $20  

Rate of Interest = ?  \( a \) 4\%  \( b \) 2\%  \( c \) 5\%  \( d \) 40\%  \( e \) not given

42 If \( \frac{B}{2} = 16 \), \( B = \)  \( f \) 14  \( g \) 16  \( h \) 18  \( i \) 32  \( j \) not given

43 Principal = $400  

Rate = 3\%  

Time = 9 mo.  \( a \) $1.33  \( b \) $9  \( c \) $12  \( d \) $108  \( e \) not given

44 If \( A = \pi r^2 \), what is the area of the circle shown at the left?  \( \pi = 3.14 \)  

\( f \) 24.12 sq. ft.  \( g \) 50.24 sq. ft.  \( h \) 198.24 sq. ft.  \( i \) 200.96 sq. ft.  \( j \) not given

Stop.
QUESTIONNAIRE

SOCIAL AND ECONOMIC CHARACTERISTICS OF INDIVIDUALS
AND FAMILIES

INFORMANT:

Name ____________________ Sex ________ Age ___________ Grade ___________

Address ____________________ Have you ever taken music lessons?

What kind? Voice __ Piano __ Other __ How Long _______

What is your father's occupation? _______________________________________

Where does your father work? _______________________________________

What is your mother's occupation? _______________________________________

Where does your mother work? _______________________________________

How much is your father paid on his job? _________________________________

How much is your mother paid on her job? _______________________________

How far did your father go in school? _________________________________

How far did your mother go in school? _________________________________

What church does your family attend? _________________________________

Does your family own an automobile ______ What Make and year _______

Household: Number of rooms __ Electricity _____________________________

Inside running water __________ Inside bath __________ Flush Toilet __

Television __________ Telephone __________ Piano ______________________

Radio-Phonograph __________ Radio __________ Phonograph _____________

Monthly Rent __________ When was your house built? _________________

Condition of House ___________ Area Lived in ________________________