A STUDY TO EVALUATE THE ACADEMIC PROGRESS OF THE STUDENTS AT WESTWOOD HIGH SCHOOL ATLANTA, GEORGIA

A THESIS
SUBMITTED TO THE FACULTY OF THE SCHOOL OF EDUCATION IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF EDUCATION SPECIALIST

BY
VIVIAN L. ARNOLD

DEPARTMENT OF COUNSELING AND GUIDANCE
SCHOOL OF EDUCATION
ATLANTA UNIVERSITY
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ABSTRACT

The primary purpose of this study was to test the assumption that the academic progress of students engaged in a work-study program at Westwood High School would be greater than the academic progress of similar students in the traditional curriculum. The criterion instrument used in measuring academic progress was the Tests of Academic Progress (TAP). Pre-test scores were obtained in September, 1975, and the post-test scores were obtained [by the test administered] in May, 1976. The composite score was utilized in the analysis of the data.

The participants for the present study were all juniors at Westwood High School when the investigations were pursued. Both the work-study students (the study group) and the comparison group consist of thirty students selected randomly from a pool of students who applied for participation in the work-study program.

Examination was made of the null hypothesis:

There is no statistically significant difference in the post-test scores between the study and the comparison groups in students' academic progress as measured by the Tests of Academic Progress.

The statistical model testing the null hypothesis compares pre-test scores to post-test scores to determine the significance for independent samples of the difference between the two gains. The t test was used to determine significance. The .05 level of confidence was used as the criterion for accepting or rejecting the null hypothesis.
Gains in test scores for academic progress (as measured by the TAP) were not significantly different between the study and comparison groups. The null hypothesis was, therefore, accepted.
Sincere appreciation is expressed to Dr. Eleanor Rowe for her constant assistance, understanding and encouragement during the process of this study. Gratitude is also expressed not only to Dr. James Doyle, who was most helpful in providing guidance at many of the critical phases, but also to Dr. Robert L. Smothers, who provided a great deal of support and encouragement to me throughout the process. A very special "Thank You!" is extended to the students and staff of Westwood High School, without whom this study would not have been possible.

V. L. A.
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CHAPTER I

NATURE AND BACKGROUND OF THE STUDY

Introduction and Rationale

Westwood High School, Atlanta, Georgia, functions according to a philosophy which holds that the "best self" of the individual student is to be fostered and developed through the school's curriculum. The portion of that philosophy referred to herein reads:

Distributive Education should provide a continuum of training opportunity that allows individuals to define or redirect their occupational goals by fostering an awareness of the civic, social, and moral responsibilities of business and industry, thereby engendering an understanding and appreciation of our American free enterprise system as a cornerstone of our American Democracy.

In furthering the aim of the total school program, Distributive Education develops keen sensitivity to changes in distribution and marketing practice and procedures as affected by social, economic and educational developments, and adapts itself to such changes.

A subscription to the methods of instruction should be adaptable to the nature of the learner based primarily upon the local needs and trends in marketing, merchandising and related management. Distributive Education should assist in the improvement of techniques in distribution and should also take into account the high mobility of the American economy and the resultant likelihood of occupational relocation in the future.

It is our desire to make the students sensitive to the constant need for change; alert to the possibilities of being of service; conscious of his responsibilities to society and to foster the 'best self' of the individual (Baker, Shields and Sayer, 1973, p. 87).

Toward this goal, Westwood initiated a Distributive Education Program which involved supervised work-study components of instruction.
This program offers instruction in distribution and marketing aimed at making a contribution to vocational competence in students whose interests and abilities are determined to apply to such a program offering. Further implied in such a program is the belief that the strictly academic curriculum does not lend itself to the general betterment of these selected students apart from a Distributive Education Program. The Distributive Education Program was initiated by Fulton County to complement the vocational choice of the individual.

If evidence is produced showing that academic excellence is achieved by the participants of the work-study program, then expansion of work-study programs seems warranted. Two main categories of benefits exist which, if proven to be attainable through a comprehensive work-study program, may serve as an impetus for an expanded program: (1) increased interest in school work with a consequential decrease in school problems; and (2), an increase in the students' post-test scores on the Tests of Academic Progress.

Counselor follow-up with teachers of students on the work-study program produced evidence that individuals who were without motivation, and have caused numerous problems, were improving in the opinion of their teachers. Table 1 data refer to the number of infractions of school rules by subjects in the study as reported by the vice-principal.

Positive results were evident in virtually all cases; and, consequently, those students required fewer counseling sessions. Further, the case load of the assistant principal, in charge of discipline, decreased by his own tabulation. He attributed the decrease to heightened in-school work brought about by the student's success in the work-study program.
TABLE 1
NUMBER OF INFRINGEMENTS OF SCHOOL RULES
AS REPORTED BY THE VICE-PRINCIPAL

<table>
<thead>
<tr>
<th>Infractions</th>
<th>1975</th>
<th>1976</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group A Non-Working</td>
<td>Group B Working</td>
</tr>
<tr>
<td>Truancy</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Late to class</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Improper smoking area</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Failure to report to detention</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Fighting</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Disobedience in classroom</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Various school officials at Westwood have expressed concern over the academic condition of certain students who, it appears, could become involved in a work-study program. The principal, counselors, work-study coordinator, and instructors in the Distributive Education Program have all voiced concern over those students who were absent from academic instruction; who were often apathetic; and who did not exhibit the necessary enthusiasm for learning progress in academic studies. Related to this was a concern that these students often read at a level lower than that indicated by their grade placement according to the scores on the Iowa Test of Basic Skills. This, of course, related directly to their apathy and lack of motivation in academic courses. Yet, it could also have had a relationship to the value of a course structure which could provide a school-oriented incentive (a work-study program)
through which they may become interested in the entire curriculum offering — specifically, that portion which involves academic learning apart from the work-study program.

The Fulton County Board of Education assigned a learning disabilities teacher to Westwood High School because approximately ten percent of the seven hundred thirty-five students at the school possessed some type of learning disability severe enough to warrant special instruction. These students were of at least average intelligence, but did not function satisfactorily in a regular classroom setting. It is conceivable that, if students presently involved in a work-study program could demonstrate academic improvement during their involvement in the work-study program, inclusion of more such programs directed at the ten percent who suffer from learning disabilities in an expanded work-study program could be justified. Such an expansion should include full-time learning disability instructors, and increased opportunities for vocational or pre-vocational training.

Statement and Interpretation of the Problem

The academic program of secondary education has been, traditionally, the program which has received curriculum emphasis; i.e., the "prep school" approach to college.

Westwood High School was organized with a mainly academic educational program. Students, however, were found to be functioning at varying levels of achievement and motivation. A mostly academic program was not responsive to the individual differences within the student body. An evaluation committee of the Southern Association of Colleges and Schools (1973), determined that curriculum changes were needed.
The absence of work-study programs had, however, overlooked millions of young people whose preferences related more to a vocational area of study than to professional fields (as that term is understood colloquially). Such students, when placed in a purely academic atmosphere, soon lose interest; and, consequently, never acquired the ambition and motivation necessary to attain academic goals.

In determining the extent of the success of Westwood's work-study program, the problem, therefore, of this study was to ascertain, through evaluation, how work-study curriculum students compared academically with those students involved in the academic curriculum apart from the work-study program. The study sought an answer to the question of whether or not vocational development, through work-study programs, was at the expense of academic development.

Implied in this statement of the problem was the possibility that, through participation in a work-study program such as that at Westwood, these students could gain the motivation necessary to achieve academically on a par with other students. This meant that the intelligence level of work-study students was potentially equal to that of those students presently academically qualified, apart from the work-study program; but that this potential equality needed to be developed through areas of interest. Once this interest was attained by the student, interest in other more academic subjects may also be attained.

Caution should be exercised in interpreting the academic success achieved by work-study students, since occupational choices made by such students do not always imply academic success. While the goals of Westwood's work-study program included aid to students with a career
goals in distribution and marketing, such aid did not preclude academic achievement. To place the problem in its proper context, it was necessary to understand that the career choices made were not necessarily correct. To determine, on the basis of academic grades, the degree to which a work-study program had benefited a particular student was to admit the possibility that the proper area of career choice had not been made (Koppock, 1963).

Westwood's work-study curriculum was directed toward determining an intelligent course of action for reaching a career goal; and it therefore evaluated progress toward that goal. This fact was vital to exploring the answer to the problem stated in this study. Evaluation of the choice made was a continuing exercise by student, teacher, parents, and counselors. It was necessary to be certain that the career goal chosen by the student involved was a work-study program which would be satisfactory for that student.

Included also in the Westwood program was a delineation of the needs of the business and industrial communities in which the school is located. This assisted in solving the problem of students confronted by the potential for employment after high school, a problem which existed in a typically metropolitan work complex. It also assisted the business community, for it provided that community with a potential work force for employment on a continuing basis. If it can be established that academic achievement of work-study students did not suffer because of the work-study program, both the "best self" of the student and the need interests of the business community could be served.
Purpose of the Study

The purpose of this study was that of evaluating whether students involved in the work-study program at Westwood High School, Atlanta, Georgia, performed academically on a level comparable to that of similar students with the same general academic curriculum.

The study attempted to answer the question concerning growth in academic achievement: Could work-study programs result in higher rates of attendance, increased motivation, and a higher level of academic achievement for participating students?

The purpose of the study (academic performance ratio between work-study and non-work-study students) was, therefore, to determine the effects, if any, of the work-study programs on the academic progress of participating students. It was hypothesized that students participating in the work-study program would demonstrate growth in academic achievement (as measured by the Tests of Academic Progress) significantly greater than similar students not participating in the program.

Need for the Study

In recent years, numerous studies, books, and research projects have been published in the area of career development, vocational program development, and related areas. Super (1970) calls for a re-conceptualization of vocational guidance, saying there is a definite need in today's educational system to delineate and develop comprehensive approaches to career and occupational programs of instruction.
Modern technology and research have opened a host of career opportunities vastly different from those areas available to high school graduates ten to twenty years ago. Within this broad spectrum of opportunity is a demand for excellence, the type of demand which can interest a student in ways other than those provided by the traditional academic curriculum. This demand appeals to the practical rather than to the abstract or purely aesthetic interests (interests often very difficult for the individual student to define for himself). Most high school students have awakened to an awareness of preference for a life vocation. It is up to the educational system to focus on that awareness, and to develop it through proper curricula. Yet it does not necessarily follow, that the academic curriculum will meet that requirement of development. Instead, through actually developing work skills in the area of student preference, this awakened potential can be realized.

Brody (1970) notes that thousands of jobs are unfilled simply because of the lack of trained, skilled personnel; especially in the highly-skilled, human-service occupations. This is only one of several authors citing similar needs within the social structure and business community of the United States. Baugh and Martin (1970) cite such objectives as providing students with experiences and information that accurately present occupational dimensions. This provides appropriate situations at different levels to allow all students to make decisions.

All the above testify to the growing awareness of vocational, occupational, and career development training programs at all levels of the educational structure - beginning as early as kindergarten. The
purpose for this particular evaluation focuses upon the general need evident within the society, in the areas of vocation, occupation, and career, for comprehensive data to be available to educational systems.

By developing solutions to the problem posed in this study, a further effort will be made toward upgrading a system of programs meaningful to both students and teachers. The program offers more course flexibility, thus allowing more individual choices, as compared to the traditional academic approach to education.

**Definition of Terms**

The following specific terms are defined as they were used in this study. Others which may not be commonly known, but which occurred within the text of the study, are defined as they are introduced.

1. **Distributive Education** - A course of study dealing with marketing, merchandising, and related management by instruction in the classroom, as well as on-the-job training in an occupation related to the student’s vocational interest. The course is designed to prepare the student for gainful employment, or for advancement in distributive occupations.

2. **Vocational Office Training** - A business course in conjunction with classroom instruction which involves employing a student on a part-time basis to enhance his skills in clerical occupations, and to receive on-the-job experience.

3. **Work-Study Program** - A program in conjunction with classroom instruction in which a student is employed on a part-time basis to sharpen skills and to receive on-the-job experience in selling and merchandising.

4. **Parent Teacher Association** - A joint membership association made up of the faculty and parents of a school to support the local school’s program.

CHAPTER II

REVIEW OF RELATED LITERATURE

History

Peters (1970) traces career guidance programs within the schools of the United States. He includes a survey of state departments of education, professional journals, research reports, colleges and universities, conference reports, vocational guidance specialists, and individual school systems; and he attempts to select proven programs and techniques related to the school curriculum. Peters recommended flexible course offerings. Within the academic curriculum offered, he suggested students be allowed to choose required and elective courses of their choice as long as it met the individual state, county, and local Board of Education requirement.

Pace (1973) makes recommendations through Congressional Committees for funding for the various programs now known as "work-study programs". He concluded that programs on the post-secondary level are more effective than those on the secondary level; furthermore, both student performance and earnings are greater at the secondary level.

As early as 1908, Parsons first recorded the use of the term "vocational guidance" and stressed that this work should become part of the public schools in every community (Zeran, Lallas, and Wagner, 1964).

The Binet-Simon Scale General Intelligence test appeared in 1905, as
a result of Binet's efforts. Revisions were made by Goddard and Kuhlman in 1911, by Terman in 1912, and by Stanford in 1915. Stern took up the banner in 1915, and Terman in 1916. On the basis of their findings Binet and Simon developed a revised test in 1908 and another in 1911 which finally culminated in the Stanford-Binet Intelligence Test.

World War I brought impetus to the testing movement; and the Army "Alpha" and "Beta were born which were used after the war to insure better workers by first testing them for the occupation.

In 1933, President Roosevelt signed the Wagner-Peyser Act, which created a national system of public employment offices.

The Occupational Research Program was launched on July 1, 1934 (Zeran, Lallas, and Wagner, 1964); and its first two projects were job analysis and worker analysis. By 1936, the Dictionary of Occupational Titles was compiled which today lists more than forty-thousand different occupations.

The Army psychologists trained in manpower analysis and job descriptions turned on "studentship", or the use of high school grades to determine success. Later Strong cited "interest" as a method of appraising career choices (Peters and Hansen, 1955).

In 1938, the Occupational Information and Guidance Service, in the Division of Vocational Education, was established. This service dealt with the inauguration of a program of occupational information and guidance (Glanz, 1967).

The Smith-Hughes, 1917, and George-Dean, 1936, Acts provided funds for agricultural education, home economics education, trade and industrial education, and distributive education.

The George-Barden Act of 1946, (Americana-Encyclopedia) and the Occupational Information and Guidance Services were forerunners of the
work-study programs funded by the Federal Government under various titles such as "Title I," "Title II," and others (Freese, 1946).

Exploring some recent criticisms of the vocational guidance field, Baugh (1970) reviewed some of the developments in this area of curriculum, promulgating the thesis that there has been too little collaboration with industrial personnel. There has been an emphasis on the individual, and the need exists for a systems approach to counseling.

**Need for Expansion of Work-Study Programs**

There seems to be a need for expanding work-study programs, again a part of a prospectus on the future of this type of vocational and career training. The United States Office of Planning, Budgeting, and Evaluation was engaged in an intensive study of fifty work-education programs drawn randomly from a stratified sample list of five hundred. The Office found that students' satisfaction with their jobs was higher in rural than in city areas; that job related placement was higher; and that job related instruction improved (Pace, 1963).

This example is one of several programs conducted by the Lebanon County Vocational Technical School, serving all the high schools in the county of Lebanon, Pennsylvania. This cooperative work-study experience is called Materials Handling, and it is the result of employer interest and request. Students (all seniors) received their basic training for their jobs at the school. Placement records show that seventy-seven percent of the graduates of the program were placed in positions related to their training school program (Seiler, 1973).

Chicago high school students who received skill training in the
tenth and eleventh grade business education classes were allowed to attend class for four hours, and then report to work in the afternoon. About fifty percent of these graduates were retained by their employers on a full-time basis after graduation (Pace, 1973).
CHAPTER III

RESEARCH DESIGN

This chapter describes the procedures employed in the study. Details are presented under the following headings: (1) subjects, (2) instrument, and (3) design.

Subjects

This study, undertaken at Westwood High School, Fulton County, Georgia, focused on the junior class of 1975-76, consisting of one-hundred sixty-two students (total enrollment seven-hundred thirty-five). Ninety-seven of the one-hundred sixty-two juniors applied for the work-study program, but nine were disqualified because of an inability to secure parental consent. Two groups of thirty students each were then selected by utilization of a table of random numbers from the remaining pool of eighty-eight students. One group was then randomly selected to participate in the work-study program (D.E. and V.O.T.), and was designated Group A - the study group. The other group was designated Group B, the comparison group. The remaining twenty-six applicants were not included in either the study group or in the comparison group.
Instrument and Collection of Data

The study and comparison groups were compared on the basis of gains in their performance on the Tests of Academic Progress (TAP) during the year 1975-76. The TAP is a widely utilized and accepted standardized instrument used in measuring academic progress in reading, mathematics, and composition. (A copy of the TAP is in the Appendixes.) These tests are administered state-wide because of their validity and reliability. Subjects in this study were tested on this instrument twice. The pre-test was administered in September, 1975 and the post-test in May 1976. The data were analyzed in terms of gains made by subjects between the two test sessions.

The Research Design

The research design employed in the present study is referred to by Campbell and Stanley (1960), as the pre-test/post-test control group design. The pre and post-test measures were used to establish the mean gains achieved by the two independent groups during the course of the academic school year. These two mean group gains were compared statistically to determine whether group A gains were significantly different from group B gains.
RESULTS AND DISCUSSION

Results

Below, are statistical data and discussion related to the research objective. The raw data scores for each subject are presented in the Appendix.

The null hypothesis states that there is no statistically significant difference in the gain scores between the study and comparison groups in academic progress as measured by the TAP. In the inferential statistical analysis, the .05 level of probability was the criterion for significance.

Mean scores and standard deviations were calculated for both pre-test and post-test administrations for both groups. The group means are presented in Table 2. On the post-test, the standard deviation was 4.78 for the study group and 3.46 for the comparison group. Mean gain scores were then compared to determine the significance of the difference between the means of the two groups for independent samples; and to accept or reject the null hypothesis.
TABLE 2

COMPARISON OF MEAN GAINS

<table>
<thead>
<tr>
<th></th>
<th>Pre-test Means</th>
<th>Post-test Means</th>
<th>Mean Gains</th>
<th>Difference in Mean Gains</th>
<th>Standard Error of The Mean Gain</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Group</td>
<td>47</td>
<td>50</td>
<td>3</td>
<td>2</td>
<td>1.118</td>
<td>1.79</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>47</td>
<td>48</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The estimate of the standard error of the mean difference between the two means was 1.118. The t ratio was 1.79. The number of degrees of freedom was 58. For 58 degrees of freedom, a t value equal to 2.00 is required at the .05 level of confidence on a two-tailed test. There was no statistically significant difference in the gain scores between the work-study and comparison groups in academic progress as measured by the TAP. Students participating in the work-study program did not make significantly greater academic progress as measured by the TAP than similar students in the general Curriculum. Therefore, the null hypothesis was accepted.

Discussion

Table 3 presents a comparison of group means and their relative percentile ranks.
### TABLE 3

**GROUP MEANS AND THEIR RELATIVE PERCENTILE RANKS**

<table>
<thead>
<tr>
<th></th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Percentile Rank</td>
</tr>
<tr>
<td>Group A</td>
<td>47</td>
<td>38</td>
</tr>
<tr>
<td>Group B</td>
<td>47</td>
<td>38</td>
</tr>
</tbody>
</table>

1. Academic growth expected over one academic year is two standard score points on TAP.

2. Growth for the study group A = 3 points.
   Growth for the comparison group B = 1 point.

3. Both groups with pre-test means of 47 scored well below the national average at the 38 percentile.

4. Both groups still scored below the national average on post-test with mean scores of 50 (43rd percentile) and 48 (35th percentile), respectively. These percentile ranks were obtained from the Teacher’s Manual, Form S, Tests of Academic Progress.

5. Even though Group A is still below the national average, the rate of growth is greater than that normally expected for one academic year on the TAP (two standard score points): Rate of growth for Group B is less than two standard score points normally expected on the TAP.

6. A gain of two standard score points is normally expected in one academic year. The study group gained three standard score points; the comparison group gained one. These differences do not lead to easy interpretation; however, they do seem worth noting.

As might be expected, the data from this study indicated that V.O.T. and D.E. students achieved below average student population. No knowledge was available about their standing relative to other VOT/DE students in the national school population.
Students in Study Group A, exposed to work experience, had the opportunity to relate their academic achievements to their daily job tasks, and perhaps this accounted for the higher mean gain in Group A compared to Group B.

Job punctuality could be related to better class attendance by work-study Group A students, as Table 1 reflects. This inference, however, must be moderated by the fact that Group B, the comparison group also showed a decrease in school infractions as reported by the Vice-principal in Table 1.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The main body of this chapter is divided into three sections. The first section is a brief summary of methodology and procedures used in conducting the investigation. The second section is conclusions based on findings related to the objectives of the study. The third is recommendations based on the results of the study, and the accompanying experience of the investigator.

The Study in Summary

The primary purpose of this study has been to test the assumption that the academic progress of students engaged in a work-study program at Westwood High School would be greater than the academic progress of similar students in the traditional curriculum. The criterion instrument used in measuring academic progress has been the Tests of Academic Progress. Pre-test scores were obtained in September, 1975, and the post-test scores were obtained by the test administered in May, 1976. The composite score is utilized in the analysis of the data.

The participants for the present study were all juniors at Westwood High School. Both the work-study students and the comparison group consisted of thirty students selected randomly from a pool of students who applied for participation in the work-study program.
Examination was made of the null hypothesis:

There is no statistically significant difference in the post-test scores between the work-study and comparison groups in students' academic progress, as measured by the Tests of Academic Progress.

The statistical model testing the null hypothesis compared the difference between mean gain scores to determine the significance for independent samples of the difference between the two gains. The t test was used to determine significance. The .05 level of significance was used as the criterion for accepting or rejecting the null hypothesis.

Conclusion and Implication

Difference in mean gain scores for academic progress (as measured by the TAP) was not significantly different from those of the work-study and comparison groups. The null hypothesis of this study therefore, was accepted.

Recommendations for Further Research

1. Even though a significant difference is not shown in this study, some further follow-up study using the same design but larger samples, may obtain a more significant result.

2. Although it cannot be established as a result of this study, it is the opinion of the investigator and others closely involved with the research that work-study students demonstrated a marked improvement in motivation. Further research should be undertaken to determine if this observation is warranted. Such research should be designed to include motivation as a measurable variable.
APPENDIX A

RAW DATA
Appendix A

Study Group

COMPOSITE SCORES ON TESTS OF ACADEMIC PROGRESS FOR WORK

<table>
<thead>
<tr>
<th>STUDY PARTICIPANTS</th>
<th>PRE-TEST SCORES</th>
<th>POST-TEST SCORES</th>
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<tr>
<td>1.</td>
<td>48</td>
<td>50</td>
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<td>2.</td>
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<td>3.</td>
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<td>PRE-TEST SCORES</td>
<td>POST-TEST SCORES</td>
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APPENDIX A

Comparison Group

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APPENDIX B

THE TESTS OF ACADEMIC PROGRESS
TESTS OF ACADEMIC PROGRESS

COMPOSITION • READING • MATHEMATICS
GRADE 11

GEORGIA STATE TESTING PROGRAM
Contents

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TESTS OF ACADEMIC PROGRESS
Test Booklet for Grade 11

FORM S

prepared under the direction of

Dale P. Scannell
Professor of Education and Dean,
School of Education, University of Kansas

in cooperation with

Oscar M. Haugh
Professor of Education, University of Kansas
(Composition and Literature)

William B. Reiner
Professor of Education, Hunter College,
City University of New York
(Science)

Dale P. Scannell
Professor of Education and Dean,
School of Education, University of Kansas
and the late

Henry P. Smith
Professor of Education, University of Kansas
(Reading)

Alvin H. Schild
Professor of Education, University of Kansas
(Social Studies)

Gilbert Ulmer
Professor of Mathematics and Education,
University of Kansas
(Mathematics)

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New York · Atlanta · Geneva, Illinois · Dallas · Palo Alto
Student Directions

Marking Your Name

Your answers to the exercises in these tests are to be marked on a separate answer sheet. A machine will score your answer sheet and print the results on a report form. The machine will also “read” your name from the answer sheet and print it on the report form next to your scores. Therefore, it is essential that you correctly mark the “Name Block” on the answer sheet.

The sample “Name Block” below has been marked correctly for the name, Edwin L. Anderson. Study the sample for a few moments. First, the name was printed in the row of boxes at the bottom of the “Name Block.” Notice that the last name was printed first and that spaces were left blank to separate the names and the middle initial. Then, in the first alphabet column, the oval containing A was blackened for the A in Anderson; in the second alphabet column, the N was marked; and so on. For the first blank box, the empty oval at the top of the column was blackened. The empty oval also was marked for the blank box following the first name and for the unused box following the middle initial.

In marking your name, you should follow the same procedure. In the row of boxes, print your last name, first name, and middle initial, leaving blank spaces to separate them. Then blacken the oval in the column for the letter in the box below the column. Finally, make sure that all the empty ovals have been marked in the columns above all blank boxes.

If your name contains more letters than there are columns in the “Name Block,” print all of your last name and as many letters of your first name as there are boxes. Remember to leave a space between names.

If you have any questions after studying the sample, ask your teacher for help. Do not mark your answer sheet until you are told to do so.

Marking Your Answers to Exercises

The exercises in the Tests of Academic Progress are multiple-choice — each exercise is followed by a list of possible answers. For each exercise in this booklet there is a corresponding row of lettered answer spaces on the answer sheet. You should read an exercise and decide which answer is correct or clearly better than the others. Then, blacken the space on the answer sheet which corresponds to the answer you have chosen. Sample exercises are shown below to help you understand how to mark the answer sheet. Study the samples carefully but do not write on this page.

Sample Exercises

In each of these exercises, you are to select the choice which best answers the question. The correct answers have been marked on the sample answer sheet.

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Sample Answer Sheet</th>
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<tr>
<td>0. Who was the first person to sign the Declaration of Independence?</td>
<td>A) Thomas Jefferson</td>
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<tr>
<td></td>
<td>B) George Washington</td>
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<tr>
<td></td>
<td>C) Benjamin Franklin</td>
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<td>D) Patrick Henry</td>
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<td>E) John Hancock</td>
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<td>00. What gaseous substance is used to etch glass?</td>
<td>A) Carbon disulfide</td>
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<td>B) Ammonia</td>
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<td>C) Hydrogen fluoride</td>
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<td></td>
<td>D) Nitrous oxide</td>
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<td></td>
<td>E) Ether</td>
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Go on to next page ➤
As you mark your answers, remember these points:

1. You will use the same answer sheet for all of the tests in this booklet. Therefore, be careful to mark your answers in that section of the answer sheet for the test you are then taking. Also, be careful that the mark is placed in the row with the same number as the exercise you are answering.

2. Make the mark large enough to fill the answer space but do not let the mark go outside the space. The marks do not have to be neat but they must be dark. A soft pencil should be used, no pens.

3. Mark only one answer space in each row. If you change your mind about an answer, thoroughly erase your first mark.

4. Do not write on the test booklet and do not fold or bend your answer sheet.

Earning Your Best Score

Some students earn lower scores on tests than they could earn, simply because they do not take the tests in the most efficient manner. The information below is provided to help you earn your best score.

As you take the test, remember these points:

1. If you are not absolutely sure about the answer to an exercise, but think you know the correct answer, mark your choice. However, if you have no idea whatsoever about the answer, omit the exercise on the answer sheet.

2. There are some exercises on each test which you may not be able to answer. Do not linger over difficult exercises; omit these and go on to easier ones. You may return to omitted exercises at the end of the test if there is time remaining. You will earn your best score if you attempt all of the exercises for which you think you may know the answers.

If you have questions about how to take the test, your teacher can help you.

_Do not start to work on any test until you are told to do so._
Test 1 Composition

Directions:
The purpose of this test is to find out how well you can write and organize various types of compositions. It consists of eight parts. Four parts contain individual directions which apply only to that part. Each of the other parts contains a composition or a letter which is followed by a series of questions. For these parts you should read the entire selection before answering any question, but you may look back at the selection as often as necessary. When you are asked about a line or part of a line, you should study the way this part relates to lines before and after it. Sometimes you will be asked to choose the best way to write a certain number of words from the selection. The correct answer will not necessarily contain the same number of words. After reading the selection quickly, read each question to decide which answer is correct or clearly better than the others. Then, mark the answer space on the answer sheet which corresponds to the answer you have chosen. Study the sample below. It is an example of the type of questions you will find in parts of this test.

Sample:
1 Hawaii, the last state
2 to be admitted to the Union
3 is the only one of the fifty
4 which is entirely surrounded
5 by water.

0. Which of the following is the correct way to write line 2?
   A) to be admitted to the Union
   B) to be admitted to the Union,
   C) to be admitted to the Union;
   D) to be admitted to the Union.

Answer:
0.  ●●●●●

Make no marks in this booklet
Part 1

DIRECTIONS: Use the selection below to answer Questions 1–9.

1. The author that I want to write my report about is Edgar Allan Poe. The title of his book was Poems and Tales. I liked the stories better than the poems because they were so different, and you got such strange feelings while reading them. He sure can think of weird places and people.

2. In the Pit and the Pendulum the story took place in a Spanish prison. It was filled with suspense and horror. Even more scary was Murders in the Rue Morgue. The description sent chills up and down my spine.

3. The characters were different to. I never imagined what an insane person is like until I read The Tell-Tale Heart.

4. I didn’t care much for the poems because I didn’t understand some of them like The Raven. And I got tired of him repeating bells, bells, bells all through one poem.

5. All in all it was a good book, and I would recommend it to my friends.

Questions — Part 1

1. How should the first five words of line 3 be written?
   A) book was Poems and Tales.
   B) book was, Poems and Tales.
   C) book was “Poems and Tales.”
   D) book was Poems and Tales.

2. Which of the following is the best way to start the last sentence in paragraph one, lines 6–7?
   A) He sure can think
   B) He can sure think
   C) He can indeed think
   D) He certainly can think

3. How should the last five words in line 10 be written?
   A) Even more scary was Murders
   B) Even more scary was “Murders
   C) Even more frightening was Murders
   D) Even more frightening was “Murders

4. How should line 13 be written?
   A) Capitalize characters.
   B) Change to to too.
   C) Change to to because and remove the period.
   D) Leave it as it is.

5. Which of the following is the best word to begin line 18?
   A) Also
   B) And
   C) Because
   D) Nevertheless

6. Which of the following words, if any, is misspelled?
   A) description (line 11)
   B) imagined (line 14)
   C) recommend (line 21)
   D) none of the above

7. Which of the following sentences contains a shift from first to second person?
   A) The . . . Poe. (lines 1–2)
   B) I . . . them. (lines 3–6)
   C) In . . . prison. (lines 8–9)
   D) I . . . Raven. (lines 16–17)

8. Which of the following sentences contains a shift from past to present tense?
   A) The . . . Poe. (lines 1–2)
   B) It . . . horror. (lines 9–10)
   C) I . . . Heart. (lines 13–15)
   D) All . . . friends. (lines 20–21)

9. Which of the following words is the antecedent of the pronoun It in line 9?
   A) prison
   B) Pit
   C) Pendulum
   D) story
**DIRECTIONS:** Below are eight word groups in a scrambled order. They may be organized into two separate paragraphs although not all sentences need to be used. Read all the sentences carefully before answering Questions 10-18.

A 1 Originally there were seven men on a team  
2 but now there are five, two forwards, two  
3 guards, and a center.

B 4 Another very crucial change is the center  
5 jump. It used to be used after a point was  
6 made as well as at the start of each period.

C 7 He thought the game was needed to fill in  
8 between the football and baseball seasons.

D 9 Also, girls may now play the game. They  
10 follow a set of rules different than boys.

E 11 A team known as “The Globe Trotters” plays  
12 more games than any other team in the U.S.

F 13 The game of basketball was invented by  
14 James A. Naismith in the year 1891.

G 15 Today the game is played much differently.

H 16 This is probably the reason it was played  
17 indoors because it became a winter sport.

### Questions — Part 2

10. With which word group should this theme begin?
   A) Group A  
   B) Group E  
   C) Group F  
   D) Group G

11. Which word groups logically belong together in the first paragraph?
   A) Groups A, B, E  
   B) Groups C, F, H  
   C) Groups C, D, E, G  
   D) Groups A, D, F, G

12. Which word group should follow word group F?
   A) Group B  
   B) Group C  
   C) Group D  
   D) Group G

13. Which word group or groups should not be included in this theme?
   A) Groups E, G  
   B) Group D  
   C) Group E  
   D) Group G

14. Which is the best way to write line 1?
   A) Originally, there were seven men on a team  
   B) Originally there were seven men on a team  
   C) Originally, there were seven men on a team;  
   D) Originally there were seven men on a team

15. What punctuation, if any, should follow the word five in line 2?
   A) a colon  
   B) a dash  
   C) a period  
   D) no punctuation

16. What is the best way to write line 10?
   A) follow a set of rules different than boys.  
   B) follow a set of rules differently than boys.  
   C) follow a set of rules different to boys.  
   D) follow a different set of rules.

17. Which is the best way to write line 15?
   A) Today the game is played much differently.  
   B) The game today, is played much differently.  
   C) The game is played much different today.  
   D) Today the game is played much different.

18. Which of the following words, if any, is misspelled?
   A) Originally (line 1)  
   B) crucial (line 4)  
   C) different (line 10)  
   D) none of the above
Questions — Part 3

19. Which is the correct way to write the salutation (line 4)?
   A) Dear Sir:
   B) Dear Sir,
   C) Dear Sir;
   D) Dear Sir

20. Which is the best way to write the fourth word in line 5?
   A) "ad"
   B) "Ad"
   C) advertisement
   D) Advertisement

21. Which of the following words, if any, should be capitalized in line 8?
   A) High School, Biology, Chemistry
   B) High School
   C) Biology, Chemistry
   D) none of them

22. What is the best way to write the last five words of line 10?
   A) teacher Homer Brown for a
   B) teacher, Homer Brown, for a
   C) teacher Homer Brown, for a
   D) teacher, Homer Brown for a

23. Which is the best way to write line 11?
   A) reference if you want to. Also, Mr. H. J. Smith
   B) reference if you want to. Also write Mr. H. J. Smith
   C) reference as well as Mr. H. J. Smith,
   D) Leave it as it is.

24. Which is the best way to write the first five words of line 16?
   A) like you suggested so you
   B) like you suggested. You
   C) as you suggested. You
   D) as you suggested so you

25. What is the best way to handle the last paragraph in this letter?
   A) Include it in the paragraph before.
   B) Leave it out entirely.
   C) Change Hoping to I hope.
   D) Leave out I am.

26. How should the complimentary close (line 19) be written?
   A) Yours Truly
   B) Yours Truly,
   C) Yours truly
   D) Yours truly,
1. My Father’s favorite Anecdote is about two Marines Bill and Joe, who were close buddies.
2. Bill was smaller and quicker but Joe was much stronger, also. Bill got the highest marks on class tests while Joe excelled on the obstacle course and the rifle range. One day they decided to practice the fighting tactics they learned in class. “When one of us has had enough and wants to quit he should yell ‘Sufficient!’” said Bill.
3. “O.K.” was Joes reply. They fought for over an hour, and finally Bill couldn’t take no more so he yelled out “Sufficient.” Joe heaved a sigh of relief. “So thats what that word was he gasped. I been trying to remember it for the last half hour.”

**Questions — Part 4**

27. Which of the following words should be capitalized in line 1?
A) My, Father’s, Favorite, Anecdote
B) My, Father’s, Anecdote
C) My, Father’s
D) My

28. Which is the correct way to write the first four words of line 2?
A) Marines Bill and Joe,
B) Marines, Bill and Joe,
C) Marines, Bill and Joe
D) Marines Bill and Joe

29. Which is the correct way to write the first three words of line 4?
A) stronger. Also, Bill
B) stronger, also, Bill
C) stronger also, Bill
D) stronger also. Bill

30. Which of the following would most improve line 7?
A) Change practice to practise.
B) Insert that before they.
C) Insert had before learned.
D) Capitalize fighting and tactics.

31. Which is the best way to write the last four words of line 9?
A) yell ‘Sufficient!’” said Bill.
B) yell. “Sufficient!” said Bill.
C) yell, ‘Sufficient!’ ” said Bill.
D) yell Sufficient!” said Bill.

32. Which is the best way to write the first four words in line 10?
A) “O.K.” was Joes reply.
B) “O.K., was Joe’s reply.”
C) “O.K.,” was Joe’s reply.
D) “O.K.,” was Joe’s reply.

33. Which is the best way to write words 3–7 in line 13?
A) “So thats what that word
B) “So that’s what that word
C) “So thats what the word
D) “So that’s what the word

34. What is the best way to write the last three words of line 13?
A) was he gasped.
B) was,” he gasped.
C) was.” he gasped.
D) was he gasped.”

35. Which of the following is the best way to write the first five words of line 14?
A) I been trying to remember
B) “I been trying to remember
C) “I have been trying to remember
D) I’ve been trying to remember

36. Which of the following words, if any, has been misspelled?
A) Anecdote (line 1)
B) buddies (line 2)
C) tactics (line 7)
D) none of the above

37. Which of the following lines contains a double negative?
A) Line 3
B) Line 9
C) Line 11
D) Line 13
Part 5

DIRECTIONS: Suppose that you are writing a theme on ‘Types of Literature.’ Listed below are 9 items that might be included. First read the entire list and decide which should be main topics, which sub-topics, and which should not be used. Then, blacken space.

A) — if the item would serve as a MAIN TOPIC.
B) — if the item would serve as a SUB-TOPIC.
C) — if the item is IRRELEVANT and should not be used.

38. poetry 43. place
39. essay 44. comedy
40. drama 45. nonfiction
41. autobiography 46. time
42. lyric

Part 6

DIRECTIONS: This section will require you to decide which items are related and should be grouped together. Examine items 47–52 below. Then, blacken space.

A) — if the item belongs in the same group that includes comedy.
B) — if the item belongs in the same group that includes novel.
C) — if the item belongs in the same group that includes lyric.
D) — if the item belongs in the same group that includes essay.
E) — if the item belongs in NONE of the four groups above.

47. ode 50. author
48. farce 51. sonnet
49. editorial 52. characters

Part 7

DIRECTIONS: Below are 6 sentences in a scrambled order which could be used in a paragraph on radio broadcasting. On scratch paper, arrange them in the order in which they should appear. Then answer the questions that follow.

A. In contrast, FM broadcasting is limited to a hundred mile range.
B. AM broadcasting is older and more commonly used.
C. FM’s great advantage is that it is free of static.
D. Two types of radio waves are used today in broadcasting, AM and FM.
E. For these reasons, some stations have both AM and FM bands.
F. Also, AM will carry much farther.

53. Where should Sentence A be placed?
A) First  D) Fourth
B) Second  E) Fifth
C) Third

54. Where should Sentence B be placed?
A) Second  D) Fifth
B) Third  E) Last
C) Fourth

55. Where should Sentence C be placed?
A) First  D) Fifth
B) Third  E) Last
C) Fourth

56. Where should Sentence D be placed?
A) First  D) Fifth
B) Second  E) Last
C) Fourth

57. Where should Sentence E be placed?
A) First  D) Fifth
B) Second  E) Last
C) Third

Part 8

DIRECTIONS: Suppose that to brix is an infinitive in the English language. Which of the 5 forms in the boxed list below would correctly fill the blank in each sentence in Questions 58–65?

A) brix — present tense form
B) brox — past tense form
C) broxen — past participle form
D) brixes — third person singular, present tense form
E) brixing — present participle form

58. She told me she is ________ a party.

59. After having ________ the news, she called me for help.

60. The teacher ________ when a student needs aid.

61. Mr. Smith said that he wanted to ________ now.

62. All of us would ________ if only we had the chance.

63. After the whistle had blown, John ________ a basket.

64. They said that he ________ on the floor several times.

65. Have you ever ________ on the automobile test course?
Test 2 Reading

Directions:
The purpose of this test is to find out how well you understand the materials which you read. The test contains selections followed by exercises. You should read an entire selection before you answer any exercise, but you may look back at the selection as often as necessary. Read the selection, read an exercise, and decide which answer is correct or clearly better than the others. Your choice should be based on what the selection states or implies. Then, mark the answer space on the answer sheet which corresponds to the answer you have chosen. Study the sample below. It is an example of the selections and exercises you will find on this test.

Sample:
A glossary of technical terms is primarily for persons with limited training in the field, rather than for the specialist. The terms defined are the common or basic ones used frequently in simple reports.

0. What is presented in a glossary?
   A) Definitions of technical terms
   B) A list of simple reports
   C) Suggestions for trained specialists
   D) Tips for amateurs
   E) The selection gives no clue.

Answer:
0. •••••
Selection 1

Alchemy is generally regarded as a pseudo-science of many years ago or even as a get-rich scheme that was concerned only with attempts to change inexpensive metals into gold or silver. However, some alchemists held that the ultimate goal of their research was to find a substance that would cure all of man's physical ills and thus enable him to live forever. Although none of the above-mentioned goals of alchemy was achieved, the laboratory methods and equipment and the chemical knowledge that was acquired by the alchemists did much to provide a firm foundation, not only for chemistry, but for modern science in general.

The exact date of alchemy’s origin is unknown, but is believed to have begun slightly before the start of the Christian era. Scholars are reasonably certain that alchemy originated in Egypt. The city of Alexandria, founded in 332 B.C., soon became the world center for commerce and scholarship and alchemy appears to have had its origin there in the combination of Greek philosophy, Egyptian technical skills, and the mystical qualities of the Middle Eastern religions.

Since the alchemists believed that the sun, moon, and each of the planets represented and controlled one of the metals, alchemy and astronomy became closely related. The position of these heavenly bodies was believed to be an extremely important determinant of the success or failure of the alchemists’ experiments because they believed that gold was controlled by the sun, silver by the moon, copper by Venus, iron by Mars, and mercury by the planet of the same name.

The alchemists believed that there were but four elements: earth, air, fire and water; from these four elements all matter was formed. Thus the various metals such as lead, copper, silver, and gold were but different forms of the same basic material. Gold, because of its beautiful luster and resistance to corrosion, and thus to aging, was regarded as the highest form of metal. In fact, it was regarded as the perfect metal. Alchemists believed that if the secret of transmuting the baser metals into gold could be found, the secret of human physical perfection and the key to immortality would also be revealed.

Today, when we think of alchemy, we are inclined to associate it with the fraud, mysticism, and deceit for which its discoveries were used by some of the fakirs of its time. However, many of the great scholars of the day were greatly concerned with its highest goals and were serious contributors to its development. Actually, the knowledge gleaned by the alchemists served to build a firm foundation for the later development of the science of chemistry; directly and indirectly this knowledge also contributed to the development of all the other sciences.

1. What interest of the alchemist leads to the mention of a get-rich scheme?

A) He hoped to turn common metals into valuable ones.
B) He hoped to win a large prize for his discoveries.
C) He hoped to find the secret of eternal life.
D) He hoped to find large quantities of gold and silver.
E) The selection gives no clue.

2. About how old is the pseudo-science of alchemy thought to be?

A) 500 years
B) 1,000 years
C) 2,000 years
D) 5,000 years
E) The selection gives no clue.
3. To what heavenly body was iron considered to be related?
   A) Sun    C) Mars
   B) Moon   D) Venus
   E) The selection does not say.

4. According to the alchemists, which of the following was not an element?
   A) Earth   C) Fire    E) Lead
   B) Air     D) Water

5. Why did the alchemist take an interest in astronomy?
   A) He was a scholar, interested in many topics.
   B) He was a philosopher, seeking all truths.
   C) Astronomy and chemistry require the use of the same techniques.
   D) He believed that success in his experiments might depend upon the position of the stars.
   E) He believed that the heavenly bodies were each made of a different element.

6. Where did alchemy probably have its beginning?
   A) Greece C) Egypt
   B) Turkey D) Jerusalem
   E) The selection gives no clue.

7. Who was the first alchemist?
   A) A chemist
   B) A philosopher
   C) A goldsmith
   D) A religious leader
   E) The selection gives no clue.

8. Of the four basic elements recognized by the alchemist, with which does he seem to have been most concerned?
   A) Water   C) Earth   E) Fire
   B) Lead    D) Air

9. Which of the following aspects of alchemy seem most clearly to be Greek contributions?
   A) Chemical equipment
   B) Technical skills
   C) Religious beliefs
   D) Philosophical principles
   E) The selection gives no clue.

10. Which of the following seems to have been the highest goal of the alchemist?
    A) To deceive an audience
    B) To create wealth
    C) To cure illness
    D) To gain religious approval
    E) The selection gives no clue.

11. According to the selection, which of the heavenly bodies was associated with platinum?
    A) The sun
    B) The moon
    C) Mercury
    D) Jupiter
    E) The selection does not say.

12. Why did alchemy flourish in Alexandria?
    A) There was religious freedom.
    B) There were fine craftsmen.
    C) There were many astronomers.
    D) There was a fine library.
    E) There was a mixing of persons from various countries.

13. What aspect of astronomical knowledge seems to have been of most concern to the alchemist?
    A) The position of the heavenly bodies
    B) The size of these bodies
    C) The composition of these bodies
    D) The distance of these bodies from earth
    E) The selection gives no clue.

14. What seems to be the most important reason why gold was regarded by the alchemist as the perfect metal?
    A) It was valuable.
    B) It did not tarnish.
    C) It was extremely heavy.
    D) It could be made into beautiful objects.
    E) The selection gives no clue.

15. What seems to be the purpose of the selection?
    A) To describe an ancient get-rich-quick scheme
    B) To entertain the reader
    C) To show the value of present-day science
    D) To describe some aspects of man’s cultural history
    E) To show how chemistry and astronomy are related

16. What seems to have been the nature of the relationship between alchemy and astronomy?
    A) Alchemy depended on astronomy.
    B) Alchemy provided the basis for astronomical studies.
    C) Both depended on philosophical principles.
    D) Both used the same equipment.
    E) Both were sciences.

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Selection 2

The name Jerusalem is the Greek form, as found in the Septuagint. In the New Testament it is also called Jerosolyma. Historically, its first appearance is as a stronghold of the Jebusites. Their king, Adoni-zedek, was slain by the Israelite, Joshua, at Makkedah and, later, the Israelites assaulted and set fire to the city. For four centuries neither side achieved undisputed possession. Some sort of peaceful intercourse must have been attained in which certain portions were tacitly understood to belong to the Canaanitish tribe and others to the Israelites.

17. What language is the origin of the name Jerusalem?
   A) Greek  C) Canaanite
   B) Jewish  D) Jebusite
   E) The selection gives no clue.

18. According to the selection, what was the first part played by the Israelites in the history of Jerusalem?
   A) They named it.  C) They occupied it.
   B) They founded it.  D) They burned it.
   E) They robbed it.

19. Who was Adoni-zedek?
   A) King of the Jebusites
   B) King of the Canaanites
   C) A general who was slain by Joshua
   D) An Israelite leader
   E) The selection does not say.

20. During the four centuries following the assault on Jerusalem, which of the following seems best to describe the relationship between the Jebusites and the Israelites?
   A) Constant guerilla warfare
   B) An armed truce
   C) Fluctuating battle lines
   D) Informal division of territory
   E) Friendly co-existence

21. According to the selection, what people originally settled Jerusalem?
   A) The Greeks  C) The Canaanites
   B) The Israelites  D) The Septuagints
   E) The Makkedahs

Make no marks in this booklet
22. Why did the Egyptians develop the art of preserving bodies?

A) To honor their rulers
B) To honor the dead
C) To preserve the bodies for future civilizations to study
D) Because they considered this a form of art
E) Because of their religious belief

23. What seems to be the major interest of present-day scholars in the Egyptian tombs?

A) To recover the wealth in them
B) To learn how mummification was done
C) To learn of the culture of ancient Egypt
D) To learn about the physical characteristics of early Egyptians
E) The selection gives no clue.

24. Which of the following is not mentioned in connection with the preparation of mummies?

A) Linen
B) Oil
C) Spices
D) Jars
E) Vital organs

25. According to the selection, what was the first step in preparing the body for burial?

A) Treat with spices and herbs
B) Treat with oil
C) Restore natural appearance
D) Remove vital organs
E) Remove body fluids

26. For about how many years did the practice of mummification exist?

A) 100
B) 400
C) 3000
D) 10,000
E) The selection does not say.

27. Approximately how long did the Egyptians take to prepare a body for burial?

A) About a week
B) About a month
C) About two months
D) Probably a year or more
E) The selection gives no clue.

28. According to the selection, on what continent is the setting for the art described in the selection?

A) Europe
B) Asia
C) Africa
D) North America
E) The selection does not say.

29. According to the selection, what was the final stage in the embalming process?

A) Treatment with spices
B) Restoring natural appearance
C) Treatment with oil
D) Drying
E) Wrapping with cloth

30. Why might a mummified cat be found in a tomb?

A) It had been a pet of the person in the tomb.
B) It had been a religious symbol.
C) It had caused the person’s death.
D) It had been regarded as a valuable animal.
E) The selection gives no clue.
Maritime law regulates ships and shipping on the high seas. Generally it has no judicial machinery of its own but depends upon the courts of commercial nations for its interpretation. Maritime law is commonly thought of as a type of international law rather than a branch of domestic law. In the United States it is administered by the Federal Courts and in Great Britain by Admiralty Courts. Traditionally there has been a close relationship between these two nations in the development of maritime law and the courts of one country frequently consider precedents established by court decisions in the other country.

In addition to their concern for civil cases, admiralty courts frequently try cases involving crimes committed on the seas. The citizenship of the accused criminal, the flag flown by the ship, and the location of the ship when the crime was committed are the factors that determine which country’s courts will have jurisdiction in a case.

32. What types of cases are tried under maritime law?
A) Civil cases only
B) Criminal cases only
C) Only cases involving piracy
D) Only cases where there is a dispute between nations
E) Both civil and criminal cases

33. According to clues given in the selection, how are maritime laws passed or developed?
A) Passed by legislative bodies in various countries
B) Passed by an international legislative body
C) Agreed upon by the navies of various countries
D) Agreed upon by the executive branches of various countries
E) Tend to grow out of court decisions and treaties

34. What seems to be the general purpose of this selection?
A) Provide information about one type of international law
B) Show how crime at sea is controlled
C) Show how nations work together
D) Show the close friendly relationship between Great Britain and the United States
E) Show how admiralty courts operate

35. What factor is not considered in deciding where a maritime crime should be tried?
A) The home country of the accused
B) The home country of the ship
C) The location when the crime was committed
D) The location of the port from which the ship sailed last
E) The selection does not say.
Selection 5

The theory in Communist lands is that the farmers should forget about working for private gain and pool their efforts joyfully to toil for the good of the State. The result would be plenty of food for all.

Unfortunately for theory, things never seem to work out quite that way. Shortages persist and the bureaucrats must rush in to reorganize the setup, juggle farm prices and otherwise try to get things moving.

Even a Communist, it seems, isn’t interested in working harder if he receives no direct benefit for his labor.

Perhaps the Communists are overlooking some basic factors, such as human nature. If they ever discover the merits of a true incentive system, they will give America some formidable competition. And not only in agriculture.

37. What does the writer of the selection feel is the main cause for the failure of communistic production?
A) The nature of human motivation
B) The lack of financial incentives
C) The lack of electrical power
D) The lack of good land
E) The writer does not say.

38. Which of the following would be the best title for this selection?
A) The Soviet Scapegoat
B) Why Communism Fails
C) The Real Danger of Communism
D) The Soviet Farm Price Program
E) Why Food Shortages Persist

39. According to the selection, what is needed most in order to increase food production?
A) More fertilizer
B) More equipment
C) More workers
D) Higher prices
E) Personal gain

40. To what does ”shortages” in the second paragraph refer?
A) Power
B) Equipment
C) Food
D) Labor
E) Farm prices

36. Where in a newspaper would this selection most likely be located?
A) Front page or current news section
B) Editorial page or section
C) A literary section
D) An interview story
E) A letter to the editor

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Selection 6

Injuries sustained by fruit and vegetables during grading, packing, and shipping often open the way for decay-producing organisms. Prospective buyers may refuse to purchase fruits and vegetables that show damage because they recognize that rapid spoilage of such produce is likely to occur.

All fresh fruits and vegetables are contaminated to some extent by thousands of spores and various fungi that are present in the soil, water, air, field boxes, and grading bins. Whether these organisms will actually cause infection and decay often depends on whether or not the produce is wounded or bruised. Although not all contaminating organisms cause decay, many do; consequently, the safest procedure is to pack and ship all produce as carefully as possible to avoid the injuries that might lead to infections.

41. For what group of persons was this selection most likely written?
   A) Packers and shippers
   B) Housewives
   C) Grocers
   D) Prospective buyers
   E) Insecticide chemists

42. With what topic is this selection mainly concerned?
   A) Reduction of food spoilage
   B) Preventing the spread of diseases
   C) Ways to recognize spoiled food
   D) Ways to package food attractively
   E) Improving farm operations

43. According to the selection, which of the following is the most basic cause of decay in fruit?
   A) Injuries
   B) Germs
   C) Spores
   D) Infection
   E) Contamination

44. As used in this selection, what is meant by “produce”?
   A) Grow
   B) Make
   C) Injure
   D) Fruit and vegetables
   E) The selection gives no clue.

45. According to the selection, what produces the decay?
   A) Certain organisms
   B) Injuries
   C) Careless handling
   D) Packing and shipping
   E) Careless picking

46. According to the selection, why are buyers likely to avoid injured fruit or vegetables?
   A) It is unattractive.
   B) It is likely to spoil.
   C) It is decaying.
   D) It is diseased.
   E) The selection gives no clue.

Selection 7

William Howard Taft (1857–1930), the 27th president, became the only man to hold the two highest offices in the government of the United States. Taft graduated from Yale second in his class, and later studied law and was admitted to the Ohio bar. Although he loved the law and had little taste for politics, his exceptional personality, huge and impressive figure, party loyalty, high intelligence, and general physical vigor forced responsibilities upon him that he could not bring himself to refuse. Presidents Harrison, McKinley and Roosevelt successively appointed him to important governmental posts. He served as federal court judge, then as governor of the Philippines, and later, under Roosevelt, as secretary of war.

During the Roosevelt administration, Taft was the general “trouble shooter.” In addition, he was a key figure in domestic policies. President Roosevelt once remarked that with Taft “sitting on the lid,” everything was all right in Washington.

Roosevelt himself chose Taft to be his successor. Despite his many successes in important governmental posts, Taft felt that he had no flair for politics. His dream, instead, was a position in the Supreme Court. However, his wife loved politics, had great talent for it, and felt that Taft would be far happier as president. She convinced him that he should give up his dream and run for the presidency.
Unfortunately, his years in the White House were filled with frustrations and a great many persons felt that he was not a successful president. He once remarked that these were the loneliest years of his life. Part of his trouble, no doubt, was that no one could have fitted perfectly into the image of the presidency that had been created by Roosevelt. An additional problem may well have been that he had no Taft to serve as his trouble shooter.

Roosevelt, however, was far from satisfied with Taft’s running of the government. He decided to compete with Taft for the party nomination, and when he lost, ran as a candidate of a third party, the Progressives. In the election of 1912, both were defeated. Taft ran a poor third and Woodrow Wilson won the presidency.

Taft’s days of public service were crowned in 1921 with the appointment that he regarded as his greatest honor and the fulfillment of his early dream. In his new and important position he helped achieve a number of judicial reforms. He remained active and influential in our government until poor health finally forced his retirement little more than a month before his death on March 8, 1930.

47. According to the selection, which president appears to have first appointed Taft to serve as a federal court judge?
   A) Harrison   C) Roosevelt
   B) McKinley   D) Wilson
   E) The selection gives no clue.

48. What seems to be the primary reason for Taft being regarded by many persons as an unsuccessful president?
   A) Lack of ability
   B) Lack of desire for the office
   C) Inability to get along with others
   D) Lack of competent assistants
   E) Comparison with predecessor

49. Who appointed Taft to the Supreme Court?
   A) Harrison   C) Roosevelt
   B) McKinley   D) None of the above.
   E) The selection does not say.

50. What seems to be the major reason Taft chose to run for the presidency?
   A) Urging of party leaders
   B) Urging of the president
   C) Urging of his family
   D) Personal ambition
   E) Extreme party loyalty and patriotism

51. During what year was Taft elected to the presidency?
   A) 1904
   B) 1908
   C) 1912
   D) 1921
   E) The selection gives no clue.

52. In this selection, what is the author’s general purpose?
   A) To make us like Taft
   B) To inform us of historical events
   C) To present information about a former president
   D) To show the problems of the presidency
   E) To entertain us

53. According to the selection, the two highest offices in United States government are those of president and
   A) Secretary of war
   B) Vice-president
   C) Chief justice of Supreme Court
   D) Secretary of state
   E) The selection gives no clue.

54. According to the selection, what term would best describe Taft’s general attitude toward Roosevelt?
   A) Awed   C) Fond   E) Loyal
   B) Jealous   D) Frightened

55. What seems to be the general attitude of the writer toward Taft?
   A) Sympathetic   C) Awed
   B) Fond   D) Dislike
   E) The selection gives no clue.

56. What position did Taft regard as being his greatest honor?
   A) Trouble shooter
   B) Secretary of war
   C) President of the United States
   D) Justice of the Supreme Court
   E) The selection does not say.

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Selection 8

The honorable art of storytelling long antedates the invention of writing. Among primitive people the longer forms of narrative were generally in verse because it was most easily memorized for oral transmission.

The invention of printing greatly stimulated the composition of prose but early prose was frequently on historical and philosophical topics. The fiction of the time tended to be romances of chivalry with witches and dragons and the writing was directed to the well-educated upper class.

Defoe’s Robinson Crusoe (1719) and his Moll Flanders (1722) marked the beginning of adventure fiction directed to the entertainment of the newly literate in the middle and lower classes. During the 19th century Jane Austen’s novels of everyday life, Scott’s historical romances and Poe’s short stories marked significant developments in fiction.

57. Why did the storytellers prefer stories in the form of poetry?
   A) Verse made the stories more interesting.
   B) Verse had rhythm and could be sung.
   C) It took more time to tell such stories.
   D) Verse made the stories easier to remember.
   E) The selection gives no clue.

58. For what social class was early fiction designed?
   A) Lower class
   B) Middle class
   C) Upper class
   D) Royalty
   E) The selection gives no clue.

59. Developments in what field most stimulated the production of prose?
   A) Religion
   B) Printing
   C) Chivalry
   D) Education
   E) Philosophy

60. What period of time is being referred to in the second paragraph?
   A) Before 1719
   B) 1719–1722
   C) The nineteenth century
   D) The age of chivalry
   E) No clue is given.

61. What is the main topic of this selection?
   A) The impact of printing on prose
   B) The contributions of early writers
   C) The art of storytelling
   D) The early history of fiction writing
   E) Romance as a literary theme

62. Why was early writing primarily for the upper class?
   A) They were most interested in chivalry.
   B) They could read.
   C) They had more leisure time.
   D) The writers were upper class.
   E) No clue is given.

63. Which of the following could best be substituted for “composition” in the second paragraph?
   A) Writing
   B) Substance
   C) Topic
   D) Authorship
   E) Distribution

64. What kind of writing increased the most shortly after the invention of printing?
   A) Short stories
   B) Romantic novels
   C) Historical and philosophical works
   D) Poems in blank verse
   E) Epic poems
Test 3 Mathematics

Directions:
The purpose of this test is to find out how well you are developing your knowledge, understanding, and skills in the area of mathematics. In many of the exercises, you will need to do some computations. Do all of your figuring on the scratch paper which you have been given, and do not make any marks in this booklet. Read the exercise, do any computations that are needed, and select the answer which is correct or clearly better than the other choices. Then, on the answer sheet, mark the answer space which corresponds to the answer you have chosen. If you do not understand an exercise, omit it and go on to those which you do know. Study the sample below.

Sample:
0. What common fraction is equivalent to 25%?
   A) \( \frac{1}{4} \)
   B) \( \frac{1}{4} \)
   C) \( \frac{1}{4} \)
   D) \( \frac{1}{4} \)
   E) None of the above

Answer:
0. C B C B C

Make no marks in this booklet
1. What single fraction is equivalent to \( \frac{5}{6} - \frac{2}{3} \)?
   A) \( \frac{3}{4} \)
   B) \( \frac{3}{5} \)
   C) \( \frac{1}{2} \)
   D) \( \frac{1}{3} \)
   E) None of the above

2. Which of the following numbers is the smallest and which is the largest?
   \((1) 3.4 \quad (2) 3.07 \quad (3) 3.015\)
   A) (1) is smallest and (2) is largest
   B) (3) is smallest and (2) is largest
   C) (1) is smallest and (3) is largest
   D) (2) is smallest and (1) is largest
   E) None of the above

3. If \( 2n - 1 = 7 \), what number is represented by \( 5n \)?
   A) 15
   B) 20
   C) 30
   D) 40
   E) None of the above

4. How many degrees are in the angle formed by the hands of a clock when it is exactly four o’clock?
   A) 40
   B) 72
   C) 80
   D) 120
   E) None of the above

5. Which number below is closest to the value of the square root of 8,000?
   A) 30
   B) 40
   C) 80
   D) 90
   E) 100

6. The faces of the two blocks in this figure are marked exactly alike with the first six letters of the alphabet. If the letter on the bottom face of the block on the left is E, what letter is on the bottom of the block at the right?
   A) A
   B) F
   C) C
   D) None of the above
   E) It is not possible to tell from the information given.

7. Which of the following divides a plane into two half-planes?
   A) a point
   B) a ray
   C) a line segment
   D) a line
   E) an angle

8. The set of whole numbers \( \{0, 1, 2, 3, 4, \ldots\} \) is closed under which of the four operations of elementary arithmetic?
   A) addition only
   B) addition and multiplication only
   C) addition, multiplication, and subtraction only
   D) addition, multiplication, subtraction, and division
   E) None of the above

9. If \( a = 3 \), and \( b = -5 \), what is the value of \( 2a^2 - 3b \)?
   A) 3
   B) 21
   C) 33
   D) 51
   E) None of the above
10. Which of the following could be the graph of the inequality \( x - 1 \geq 3 \)?

\[
\begin{array}{c}
A) \\
B) \\
C) \\
D) \\
E) \\
\end{array}
\]

11. How many square units are in the area of the figure below?

\[
\begin{array}{c}
A) 2(x - 3) + 3(w - 2) \\
B) (x - 3)(w - 2) \\
C) 3x + 2w + 6 \\
D) xw - 6 \\
E) None of the above \\
\end{array}
\]

12. How many diagonals can be drawn from one vertex of a convex polygon with \( k \) sides?

\[
\begin{array}{c}
A) k \\
B) k - 1 \\
C) k - 2 \\
D) k - 3 \\
E) None of the above \\
\end{array}
\]

13. If \( R = \{a, b, c, d\} \) and \( S = \{c, d, e, f\} \), how many elements are in \( R \cap S \)?

\[
\begin{array}{c}
A) 2 \\
B) 4 \\
C) 6 \\
D) 8 \\
E) None of the above \\
\end{array}
\]

14. If \( x \) pencils cost \( y \) cents, what expression would represent the cost of one pencil?

\[
\begin{array}{c}
A) xy \\
B) \frac{y}{x} \\
C) \frac{x}{y} \\
D) \frac{1}{xy} \\
E) None of the above \\
\end{array}
\]

15. In a certain mathematical system, the operation \( \otimes \) is defined by the following:

\[ a \otimes b = \frac{b - a}{a \cdot b} \]

where \( a \) and \( b \) can be any numbers. Thus, \( 3 \otimes 5 = \frac{2}{15} \).

What number is \( x \) if \( 2 \otimes x = \frac{6}{2x} \)?

\[
\begin{array}{c}
A) 3 \\
B) 4 \\
C) 6 \\
D) 8 \\
E) 12 \\
\end{array}
\]

16. How does the area of the triangle above compare with the area of the rectangle?

\[
\begin{array}{c}
A) Area of triangle is \frac{1}{3} as large \\
B) Area of triangle is \frac{1}{4} as large \\
C) Area of triangle is \frac{1}{2} as large \\
D) Area of triangle is \frac{3}{4} as large \\
E) None of the above answers is correct. \\
\end{array}
\]
17. If the triangles below are similar, what number does $x$ represent?

![Triangles]

A) 21  
B) 24  
C) 25  
D) 30  
E) None of the above

18. What number is 4% of 800? 

A) 20  
B) 50  
C) 200  
D) 320  
E) None of the above

19. The average of ten numbers is 40. What is the sum of the ten numbers? 

A) 4  
B) 25  
C) 40  
D) 400  
E) None of the above

20. How many cents are there in a sum of money made up of $x$ pennies, $y$ nickels, and $z$ dimes? 

A) $x + y + z$  
B) $x + 5y + 10z$  
C) $\frac{x + 5y + 10z}{100}$  
D) $100(x + y + z)$  
E) $100(x + 5y + 10z)$

21. Which one of the equations below is equivalent to $\frac{2}{3}w + 4 = 0$? 

A) $2w = -12$  
B) $3w = -12$  
C) $2w = 12$  
D) $3w = 12$  
E) $2w = -6$

22. Which expression below is equivalent to $x(x + 3)(x - 3)$? 

A) $x^3 - 6x^2 - 9x$  
B) $x^3 - 9x$  
C) $x^3 - 9x^2$  
D) $3x^3 - 9x$  
E) $3x - 9$

23. How many bricks are in the stack? 

A) 36  
B) 40  
C) 48  
D) 64  
E) None of the above

24. How many of the bricks in the stack are not shown at all in the picture?  

A) 12  
B) 16  
C) 18  
D) 24  
E) None of the above
25. Which expression below names the same number as \( \frac{a}{b} + \frac{3}{4} \), where \( a \) and \( b \) are any numbers with \( b \) not zero?

A) \( \frac{3}{4} \cdot \frac{a}{b} \)
B) \( \frac{4}{3} \cdot \frac{a}{b} \)
C) \( \frac{b}{3} \cdot \frac{a}{4} \)
D) \( \frac{b}{4} \cdot \frac{a}{3} \)
E) \( \frac{3}{4} + \frac{a}{b} \)

26. What simpler expression is equivalent to \((-9b^4)^2\)?

A) \(-9b^8\)
B) \(-9b^{16}\)
C) \(81b^8\)
D) \(81b^{16}\)
E) None of the above

27. Solve for \( x \): \( A + Bx + Cx = D \)

A) \( x = \frac{A - D}{B + C} \)
B) \( x = \frac{D - A}{B + C} \)
C) \( x = \frac{A + D}{B + C} \)
D) \( x = \frac{D - A}{C} \)
E) None of the above

28. Which of the following sets of lengths could not be the lengths of the sides of any triangle?

1) {6 in., 6 in., 2 in.}
2) {5 in., 3 in., 2 in.}
3) {5 in., 3 in., 1 in.}

A) (1) only
B) (2) only
C) (1) and (3)
D) (2) and (3)
E) A triangle can be formed with any three given lengths as the lengths of its sides.

29. In which figure (or figures) below is a circle inscribed in a triangle?

(1) (2) (3)

A) (1) only
B) (1) and (3)
C) (2) only
D) (3) only
E) None of the above answers is correct.

30. What is the \( y \)-value of the common solution of the system \( \begin{cases} x + y = 5 \\ x - y = 3 \end{cases} \)?

A) 1
B) 2
C) 3
D) 4
E) None of the above

31. If ten articles cost \( y \) cents, at the same rate how many cents would three of the articles cost?

A) \( \frac{3y}{10} \)
B) \( \frac{30}{y} \)
C) \( \frac{10y}{3} \)
D) \( 30y \)
E) \( 3(10 + y) \)

32. What is the measure (in degrees) of angle \( \angle ACB \) in the figure above?

A) 25
B) 35
C) 45
D) 70
E) None of the above

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33. What is the largest whole number that can be divided exactly into 18, 24, and 36?
   A) 2
   B) 3
   C) 9
   D) 12
   E) None of the above

34. Which of the following numbers is equal to $2^5 - 2^4$?
   A) 1
   B) 2
   C) $2^2$
   D) $2^3$
   E) $2^4$

35. In a numeral system with a base other than ten, $4 + 3 = 11$. What is the base of this system?
   A) 5
   B) 6
   C) 7
   D) 8
   E) 9

36. Which statement below is equivalent to $|x| < 4$?
   A) $x < 4$
   B) $x > -4$
   C) $0 < x < 4$
   D) $-4 < x < 4$
   E) $4 < x < -4$

37. Which expression below is equivalent to $\sqrt{18}$?
   A) $2\sqrt{3}$
   B) $3\sqrt{2}$
   C) $9\sqrt{2}$
   D) $\sqrt{10} + \sqrt{8}$
   E) $\sqrt{3} + \sqrt{2}$

38. Which number below is the best approximation of the number of units in the length of the diagonal of this rectangle?
   A) $7\frac{1}{2}$
   B) 8
   C) $8\frac{1}{2}$
   D) 9
   E) $9\frac{1}{2}$

39. How many members of the set $\{0, 2, 4, 6, 8, 10\}$ satisfy the inequality, $x + 1 > 5$?
   A) 1
   B) 2
   C) 3
   D) 4
   E) None of the above

In answering Exercises 40 and 41, refer to the figure below which shows how the price of an article changed throughout one year.

![Price Chart]

40. In which three-month period was there the greatest increase in price?
   A) January–April
   B) February–May
   C) July–October
   D) August–November
   E) September–December

41. What was the longest period in which there was an increase in price each month?
   A) three months
   B) four months
   C) five months
   D) six months
   E) seven months

42. The lengths of the legs of this right triangle are 10 ft. and 6 ft. How can the number of feet in the other side be found?
   A) By adding 10 and 6
   B) By adding the square root of 10 and the square root of 6
   C) By squaring 10, squaring 6, and adding these numbers
   D) By finding the square root of $(10^2 - 6^2)$
   E) By finding the square root of $(10^2 + 6^2)$
43. What single fraction is equivalent to \( \frac{x + y}{3} + \frac{y}{5} \)?

A) \( \frac{x + y}{8} \)
B) \( 5x + 3y \)
C) \( \frac{x + y}{15} \)
D) \( \frac{5x + 3y}{15} \)
E) None of the above

44. Based on the examples below, what would be a good guess as to the sum of the first two hundred positive integers?

Sum of first two: \( 1 + 2 = \frac{2 \cdot 3}{2} \)

Sum of first three: \( 1 + 2 + 3 = \frac{3 \cdot 4}{2} \)

Sum of first four: \( 1 + 2 + 3 + 4 = \frac{4 \cdot 5}{2} \)

A) 2,000
B) 2,010
C) 4,020
D) 20,100
E) 40,200

45. How many square inches are there in the area of this triangle?

A) 12
B) 20
C) 24
D) 30
E) None of the above

46. Which of the following is the best approximation of the number of sq. ft. in the area of a circle whose diameter is 14 ft.?

A) 43
B) 87
C) 154
D) 225
E) 616

47. The points (-2, -1), (2, 1), and (0, 5) are three vertices of a square.

What are the coordinates of the fourth vertex?

A) (-4, 4)
B) (-3, 4)
C) (-3, 3)
D) (-4, 3)
E) None of the above

48. Which expression below is equivalent to \( \frac{y_2 - y_1}{x_2 - x_1} \)?

A) \( \sin \alpha \)
B) \( \cos \alpha \)
C) the length of \( P_1 P_2 \)
D) the slope of \( P_1 P_2 \)
E) \( \tan \beta \)
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