

Alberta Provincial Achievement Testing

Assessment
Highlights
2009-2010

GRADE
9

Knowledge and Employability Mathematics



Government
of Alberta ■

Alberta ■

Freedom To Create. Spirit To Achieve.

This document contains assessment highlights from the 2010 Grade 9 Knowledge and Employability English Mathematics Achievement Test.

Assessment Highlights provide information about the overall test, the test blueprints, and student performance on the 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test. Also provided is commentary on student performance at the *acceptable standard* and the *standard of excellence* on the 2010 achievement test. This information is intended for teachers and is best used in conjunction with the multi-year and detailed school reports that are available to schools via the extranet. **Assessment Highlights** reports for all achievement test subjects and grades will be **posted on the Alberta Education website every year** in the fall.

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The Alberta Education Internet address is education.alberta.ca.

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The 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test. The examination statistics that are included in this document represent all writers: both French and English. If you would like to obtain English-only statistics or French-only statistics that apply to your school, please refer to your detailed reports which are available on the Extranet. It complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

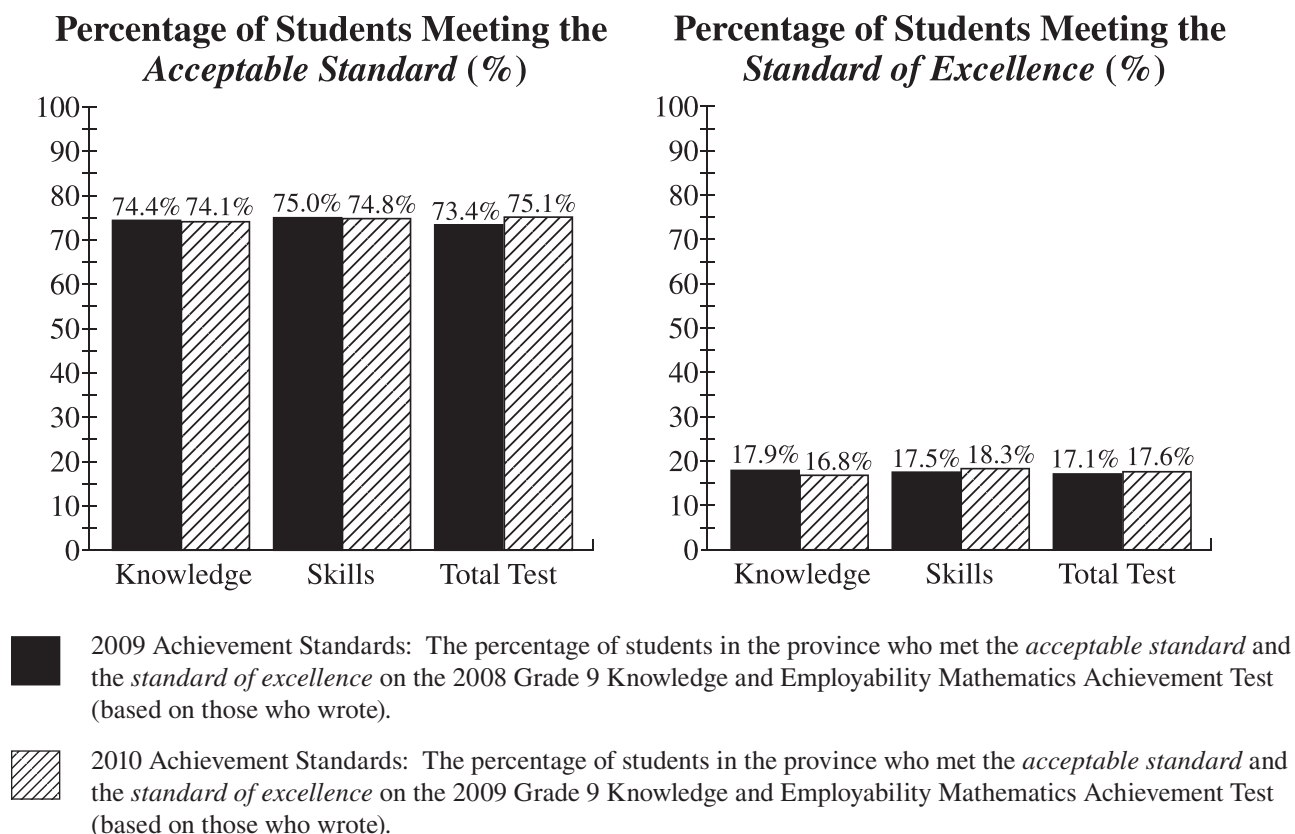
A total of 1 654 students wrote the 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test.

What Was the Test Like?

The 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test consisted of 46 multiple-choice and 4 numerical-response items based on four strands: Number; Patterns and Relations; Shape and Space; and Statistics and Probability.

How Well Did Students Do?

The percentages of students meeting the *acceptable standard* and the *standard of excellence* in 2010 are consistent with 2009, as shown in the graphs below. Out of a total possible score of 50, the provincial average on the test was 32.2 (64.4%).



2009 Test Blueprint and Student Achievement

In 2010, 75.1% of students who wrote the test achieved the *acceptable standard* on the Grade 9 Knowledge and Employability Mathematics Achievement Test, and 17.6% of students achieved the *standard of excellence*.

The blueprint below shows the reporting categories and test sections (curricular content areas) by which 2010 summary data are reported to schools and school authorities, and the provincial average of student achievement by both raw score and percentage.

Test Sections	Reporting Category		Provincial Student Achievement (Average Raw Score and Percentage)
	Knowledge	Skills	
Number <ul style="list-style-type: none"> • Number Concepts • Number Operations 			11.7/18 65.0%
Patterns and Relations <ul style="list-style-type: none"> • Patterns and Relationships • Variables and Equations 			3.6/6 60.0%
Shape and Space <ul style="list-style-type: none"> • Measurement • 3-D Objects and 2-D Shapes • Transformations 			10.9/17 64.0%
Statistics and Probability <ul style="list-style-type: none"> • Collecting and Analyzing Information 			6.5/9 72.2%
Provincial Student Achievement (Average Raw Score and Percentage)	11.4/17 (67.1%)	20.8/33 (63.0%)	Total Test Raw Score 32.2 (64.4%)

Commentary on 2010 Student Achievement

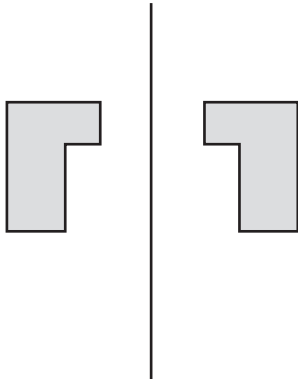
The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2010 Grade 9 Knowledge and Employability Mathematics Achievement Test. Four sample questions are also provided to highlight some of these areas. These questions are no longer secured and will not be reused on future achievement tests.

Students demonstrated relative strength by being able to:

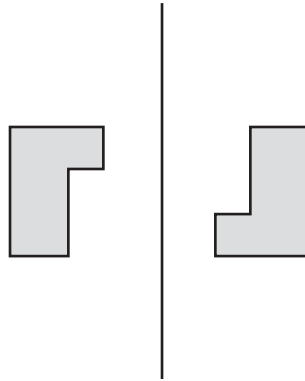
- Use visualization to identify a 3-D object using a net
- Examine the distribution of a set of data using frequency
- Order positive and negative integers on a number line
- Calculate a percentage to solve a problem in an everyday context
- Read, interpret, and communicate information represented in graphs

For **multiple-choice question 28**, students had to use visualization to examine and identify the shapes that represented a reflection. Approximately 83.5% of students who met the *acceptable standard* and 95.5% of students who met the *standard of excellence* answered this question correctly.

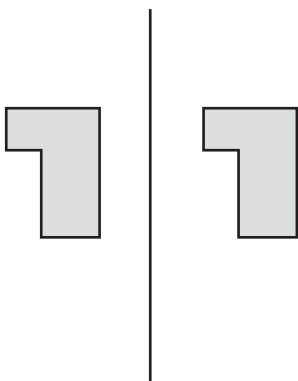
28. Which of the following pairs of 2-D shapes represents a reflection?



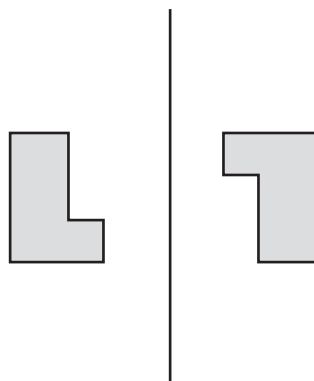
A.



B.



C.



D.

79.8% of the students chose A (correct answer)

5.2% of the students chose B

10.8% of the students chose C

4.3% of the students chose D

For **multiple-choice question 35**, students had to read and interpret information to identify the Venn diagram represented in the given data. Approximately 90.7% of students who met the *acceptable standard* and about 96.0% of students who met the *standard of excellence* answered this question correctly.

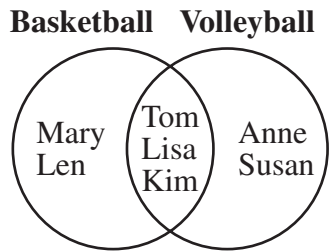
Use the following information to answer question 35.

Seven students at Kennedy High School participate in at least one sport, as shown below.

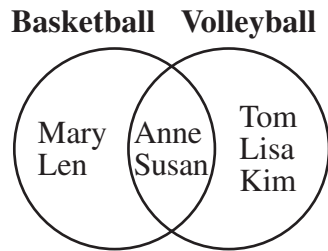
- Mary and Len play basketball only.
- Anne and Susan play volleyball only.
- Tom, Lisa, and Kim play both basketball and volleyball.

35. Which of the following Venn diagrams represents the data shown above?

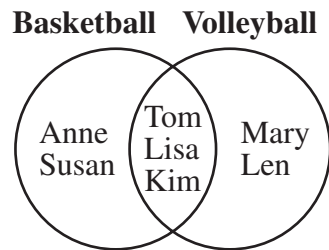
A.



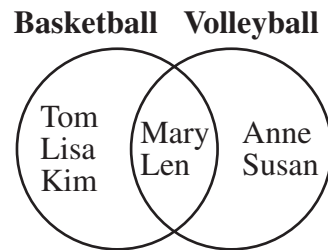
B.



C.



D.



82.8% of the students chose A (correct answer)

6.9% of the students chose B

6.3% of the students chose C

3.7% of the students chose D

Students demonstrated relative difficulty with:

- Converting given units of measure
- Calculating the area of a quadrilateral
- Classifying and identifying examples of angles
- Using a common measurement instrument to determine an accurate measurement of length
- Using measurement concepts to calculate the area of a rectangle to solve problems in everyday contexts

For **multiple-choice question 10**, students had to apply arithmetic operations including calculating a percentage to solve a problem in an everyday context. Approximately 42.4% of students who met the *acceptable standard* and 67.6% of student who met the *standard of excellence* answered this question correctly.

Use the following information to answer question 10.

Rafe wants to paint his house. Paint is advertised at \$9.90 per can, **not** including tax.

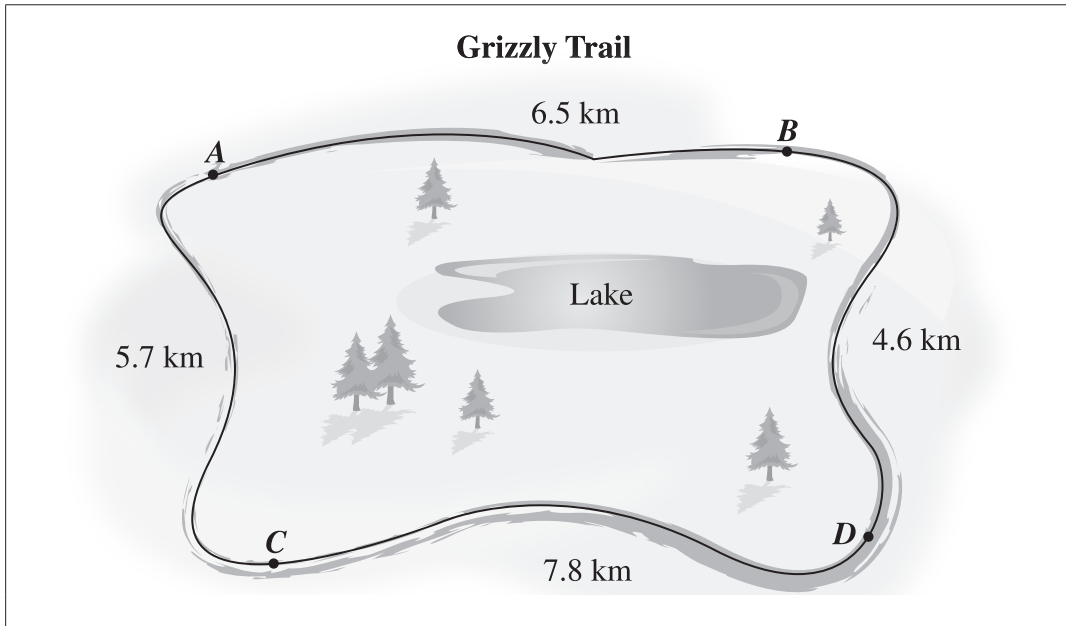
10. How much will it cost to buy 4 cans of paint, including 6% tax?

- A.** \$10.50
- B.** \$39.60
- C.** \$41.98
- D.** \$42.37

7.7% of the students chose A
33.3% of the students chose B
42.3% of the students chose C (correct answer)
16.6% of the students chose D

For **multiple-choice question 14**, students had to apply arithmetic operations including using estimation strategies to solve a problem. Approximately 57.6% of students who met the *acceptable standard* and 79.0% of student who met the *standard of excellence* answered this question correctly.

Use the following information to answer question 14.



- 14.** If Lynn hikes around Grizzly Trail **2 times**, then what is the approximate distance she hikes?
- A.** 25 km
 - B.** 26 km
 - C.** 44 km
 - D.** 50 km

22.0% of the students chose A
9.7% of the students chose B
14.5% of the students chose C
53.6% of the students chose D (correct answer)

Achievement Testing Program Support Documents

The Alberta Education website contains several documents that provide valuable information about various aspects of the achievement testing program. To access these documents, go to the Alberta Education website at education.alberta.ca. From the home page, follow this path: *Teachers > Provincial Testing > Achievement Tests*, and then click on one of the specific links under the *Achievement Tests* heading to access the following documents.

Achievement Testing Program General Information Bulletin

The *General Information Bulletin* is a compilation of several documents produced by Alberta Education and is intended to provide superintendents, principals, and teachers with easy access to information about all aspects of the achievement testing program. Sections in the bulletin contain information pertaining to schedules and significant dates; security and test rules; test administration and directives; test accommodations; field testing; resources and web documents; calculator and computer policies; test marking and results; samples, forms, and letters; and Learner Assessment contacts.

Subject Bulletins

At the beginning of each school year, subject bulletins are posted on the Alberta Education website for all achievement test subjects for grades 3, 6, and 9. Each bulletin provides descriptions of assessment standards, test design and blueprinting, and scoring guides as well as suggestions for preparing students to write the tests and information about how teachers can participate in test development activities.

Writing Samples

For achievement tests in grades 3, 6, and 9 English Language Arts and Français/French Language Arts, and grades 6 and 9 Mathematics, writing samples have been designed to be used by teachers and students to enhance students' writing and to assess this writing relative to the standards inherent in the scoring guides for the achievement tests. The writing samples documents contain sample responses with scoring rationales that relate student work to the scoring categories and scoring criteria for the writing assignments.

Previous Achievement Tests and Answer Keys

All January achievement tests (parts A and B) for Grade 9 semestered students are secured and must be returned to Alberta Education. All May/June achievement tests are secured except Part A of grades 3, 6, and 9 English Language Arts and Français/French Language Arts. Unused or extra copies of only these Part A tests may be kept at the school after administration. Teachers may also use the versions of released items and/or tests that are posted on the Alberta Education website.

Parent Guides

Each school year, versions of the *Parent Guide to Provincial Achievement Testing* for grades 3, 6, and 9 are posted on the Alberta Education website. Each guide presents answers to frequently asked questions about the achievement testing program; descriptions of and sample questions for each achievement test subject; and excerpts from the *Curriculum Handbook for Parents* identifying what students should know and be able to do in each subject by the end of grades 3, 6, and 9.

Involvement of Teachers

Teachers of grades 3, 6, and 9 are encouraged to take part in a variety of activities related to the achievement testing program. These activities include item development, test validation, field testing, and marking. In addition, regional consortia can make arrangements for teacher in-service workshops on topics such as *Interpreting Achievement Test Results to Improve Student Learning*.