

**Alberta Provincial
Achievement Testing**

**Assessment
Highlights
2016–2017**

**GRADE
9**

Knowledge and Employability Mathematics

Alberta  Government

This document was written primarily for:

Students	
Teachers	✓ of KE Mathematics
Administrators	✓
Parents	
General Audience	
Others	

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The [Alberta Education website](http://education.alberta.ca) is found at education.alberta.ca.

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The 2017 Grade 9 Knowledge and Employability Mathematics Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of students who wrote the 2017 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. This report complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

A total of 1 531 students wrote the 2017 Grade 9 Knowledge and Employability Mathematics Achievement Test.

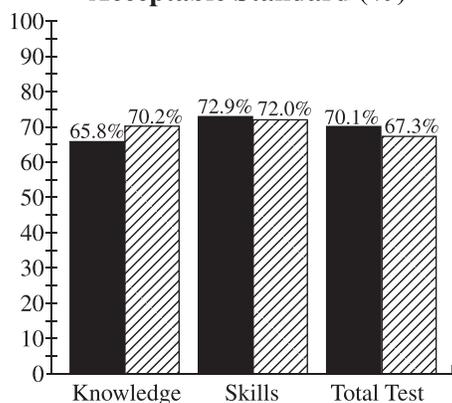
What Was the Test Like?

The 2017 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.

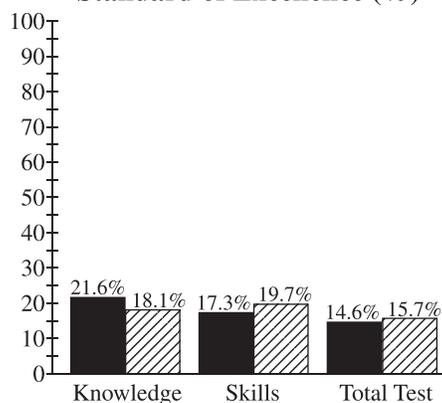
How Well Did Students Do?

The percentages of students meeting the acceptable standard and the standard of excellence in 2017 compared with 2016 are shown in the graphs below. Out of a possible total score of 50, the provincial average on the test was 30.7 (61.4%).

Percentage of Students Meeting the Acceptable Standard (%)



Percentage of Students Meeting the Standard of Excellence (%)



 2016 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2016 Grade 9 Knowledge and Employability Mathematics Achievement Test (based on those who wrote).

 2017 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2017 Grade 9 Knowledge and Employability Mathematics Achievement Test (based on those who wrote).

2017 Test Blueprint and Student Achievement

In 2017, 67.3% of students who wrote the test achieved the acceptable standard on the Grade 9 Knowledge and Employability Mathematics Achievement Test, and 15.7% of students achieved the standard of excellence.

The blueprint below shows the reporting categories and test sections (curricular content areas) by which 2017 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 			12.3/20 (61.5%)
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 			10.9/18 (60.6%)
Statistics and Probability <ul style="list-style-type: none"> • Collecting and Analyzing Information 			4/6 (66.7%)
Provincial Student Achievement (Average Raw Score and Percentage)	10.2/17 (60.0%)	20.5/33 (62.1%)	Total Test Raw Score 30.7/50 (61.4%)

Commentary on 2017 Student Achievement

The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2017 Grade 9 Knowledge and Employability Mathematics Achievement Test. 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:

- identify a 3-D object (figure) based on a representation of a given net;
- identify the most appropriate unit of measure for capacity in an everyday context;
- identify a location on a coordinate grid using a set of given directions;
- compare and order a given set of decimal numbers;
- determine the greatest common factor for given numbers.

For **multiple-choice question 3**, students had to identify the most appropriate unit of measure for capacity in an everyday context. Approximately 86.4% of students who met the acceptable standard and 93.5% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 3.

A student wants to determine the amount of punch that would be needed for a group of 30 students.

3. Which of the following units would be **most appropriate** for determining the amount of punch needed for the group of students?
- A. Litres
 - B. Grams
 - C. Millilitres
 - D. Kilograms

80.8% of the students chose A (correct answer)

4.8% of the students chose B

9.3% of the students chose C

5.0% of the students chose D

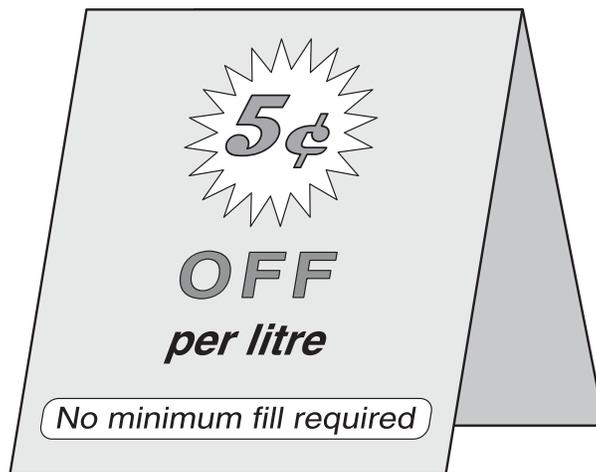
Students experienced relative difficulty with:

- applying arithmetic operations using decimal numbers;
- converting a common Imperial unit to determine mass;
- calculating the dimensions of a rectangle given the area of the shape;
- applying arithmetic operations using decimal numbers.

For **multiple-choice question 12**, students had to apply arithmetic operations using decimal numbers. Approximately 46.3% of students who met the acceptable standard and 85.4% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 12.

A gas station advertises the following gasoline discount.



- 12.** How much money will a customer save if she buys 110 L of gasoline at this gas station?
- A.** \$1.05
 - B.** \$1.15
 - C.** \$5.00
 - D.** \$5.50

24.1% of the students chose A

17.6% of the students chose B

13.9% of the students chose C

44.1% 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](#). Click on one of the specific links 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 directives, guidelines, and procedures; calculator and computer policies; test accommodations; test marking and results; field testing; resources and web documents; forms and samples; and Provincial Assessment Sector 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 6 and 9. Each bulletin provides descriptions of assessment standards, test design and blueprinting, and scoring guides (where applicable) as well as suggestions for preparing students to write the tests and information about how teachers can participate in test development activities.

Examples of the Standards for Students' Writing

For achievement tests in grades 6 and 9 English Language Arts and Français/French Language Arts, writing samples are designed for 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 exemplars documents contain sample responses with scoring rationales that relate student work to the scoring categories and scoring criteria.

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 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 released items and/or tests that are posted on the Alberta Education website.

Parent Guides

Each school year, versions of the [Alberta Provincial Achievement Testing Parent Guide](#) for grades 6 and 9 are posted on the Alberta Education website. Each guide answers frequently asked questions about the achievement testing program and provides descriptions of and sample questions for each achievement test subject.

Involvement of Teachers

Teachers of grades 6 and 9 are encouraged to take part in activities related to the achievement testing program. These activities include item development, test validation, field testing, and marking. In addition, arrangements can be made through the Alberta Regional Professional Development Consortia for teacher in-service workshops on topics such as interpreting achievement test results to improve student learning.