



Grade 9 Assessment Highlights Knowledge and Employability Mathematics

Alberta Provincial Achievement Testing **2021–2022**

This document was written primarily for

Students

Teachers ✓ Grade 9 KE Mathematics

Administrators ✓

Parents

General Audience

2021–2022 Grade 9 Assessment Highlights Knowledge and Employability Mathematics

Distribution: This document is posted on the [Alberta Education website](#).

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This document contains assessment highlights from the *2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test*.

Assessment Highlights provides information about the overall test, the test blueprint, and student performance on the provincial achievement test that was administered in 2022. Also provided is information on student performance at the acceptable standard and the standard of excellence on selected items from the *2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test*. This information is intended for teachers and is best used in conjunction with multi-year and detailed school reports that are available to schools via the Stakeholder File Exchange (SFX). **Assessment Highlights** for all provincial achievement test subjects and grades are **posted on the Alberta Education website every year** in the fall.

The examination statistics that are included in this document represent both French and English writers. 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 Stakeholder File Exchange (SFX).

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2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the 2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test. It complements the detailed school and jurisdiction reports.

How many students wrote the test?

A total of 1 402 students in Alberta wrote the 2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test.

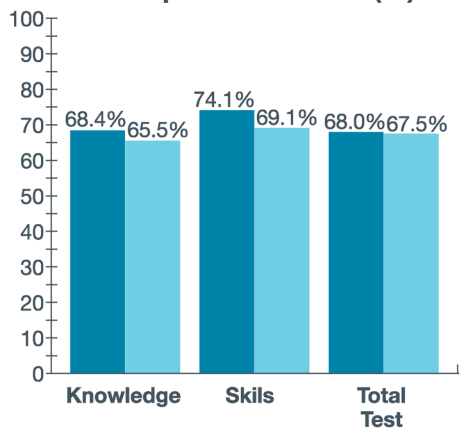
What was the test like?

The 2022 Grade 9 Knowledge and Employability Mathematics Provincial 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.

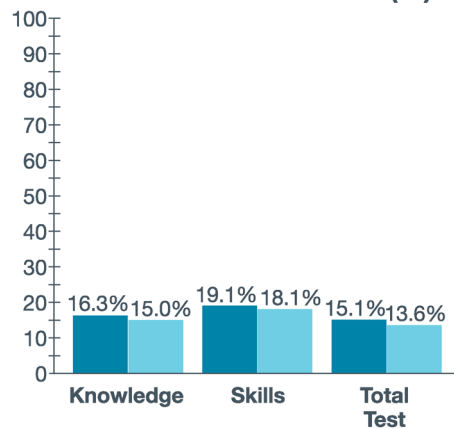
How well did students do?

The percentages of students meeting the acceptable standard and the standard of excellence in 2022 are shown in the graph below. Out of a possible total score of 50, the provincial average on the test was 31.5 (63.0%).

Percentage of Students Meeting the Acceptable Standard (%)



Percentage of Students Meeting the Standard of Excellence (%)



2019 Achievement Standards: The percentage of students in the province that met the acceptable standard and the standard of excellence on the 2019 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test (based on those who wrote).

2022 Achievement Standards: The percentage of students in the province that met the acceptable standard and the standard of excellence on the 2022 Grade 9 Knowledge and Employability Mathematics Provincial Achievement Test (based on those who wrote).

Test Blueprint and Commentary on 2022 Student Achievement

In 2022, 67.5% of students who wrote the test achieved the acceptable standard on the *Grade 9 Knowledge and Employability Mathematics Achievement Test*, and 13.6% of students achieved the standard of excellence.

The blueprint below shows the reporting categories and test sections (curricular content areas) by which 2022 summary data are reported to schools and school authorities, and the provincial average of student achievement by both raw score and percentage.

CONTENT REPORTING			
Test Section	Knowledge	Skills	Provincial Student Achievement (Average Raw Score and Percentage)
Number <ul style="list-style-type: none"> Number Concepts Number Operations 			11.9/18 (66.1%)
Patterns and Relations <ul style="list-style-type: none"> Patterns and Relationships Variables and Equations 			3.2/6 (53.3%)
Shape and Space <ul style="list-style-type: none"> Measurement 3-D Objects and 2-D Shapes Transformations 			10/17 (58.8%)
Statistics and Probability <ul style="list-style-type: none"> Collecting and Analyzing Information 			6.3/9 (70.0%)
Provincial Student Achievement (Average Raw Score and Percentage)	10.4/15 (69.3%)	21.1/35 (60.3%)	31.5/50 (63.0%)

Commentary on 2022 Student Achievement

The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the *2022 Grade 9 Knowledge and Employability Mathematics Provincial 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 provincial achievement tests.

Students demonstrated relative strength by being able to:

- identify common factors for a given set of numbers
- apply arithmetic operations with percentages in everyday contexts
- apply number sense using ratios in an everyday context
- identify the value that occurs most frequently in a given set of data
- make a conclusion based on a given set of data.

For multiple-choice question 20, students had to determine a specific ratio given a set of data. Approximately 80.9% of students who met the acceptable standard, and 89.6% of students who met the standard of excellence, answer this item correctly.

Use the following information to answer question 20.

There are 47 boys and 31 girls in the ninth grade.

20. What is the ratio of boys to girls?

- A. 1:31
- B. 1:47
- C. 31:47
- D. 47:31

3.8% of the students chose A
5.9% of the students chose B
13.3% of the students chose C
76.7% of the students chose D (correct answer)

Students experienced relative difficulty with

- converting a percentage to an equivalent value
- identifying a missing number in a given pattern
- identifying, from a given table of shapes, the two shapes that are similar
- determining a given location on a coordinate grid using an ordered pair
- interpreting information and drawing conclusions from a given graph.

For **multiple-choice question 35**, students had to determine an equivalent value given a percent value. Approximately 39.2% of students who met the acceptable standard, and 63.7% of students who met the standard of excellence, answered the item correctly.

35. Which of the following values is equivalent to 6%?

- A. 0.06
- B. 0.6
- C. 60
- D. 600

43.4% of the students chose A (correct answer)
45.9% of the students chose B
8.1% of the students chose C
2.3% of the students chose D

Provincial Achievement Testing Program Support Documents

The Alberta Education website contains several documents that provide valuable information about various aspects of the provincial 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.

Provincial 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 Provincial 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 provincial 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 provincial 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. The exemplars documents contain sample responses with scoring rationales that relate student work to the scoring categories and scoring criteria.

Previous provincial achievement tests and answer keys

All January provincial achievement tests (parts A and B) for Grade 9 semestered students are secured and must be returned to Alberta Education. All May/June provincial 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 Provincial Achievement Testing Program and provides descriptions of, and sample questions for, the provincial achievement test in each subject.

Involvement of teachers

Teachers of grades 6 and 9 are encouraged to take part in activities related to the Provincial 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 provincial achievement test results to improve student learning.