

**Alberta Provincial  
Achievement Testing**

**Assessment  
Highlights  
2011–2012**

**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 2012 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 2012 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?

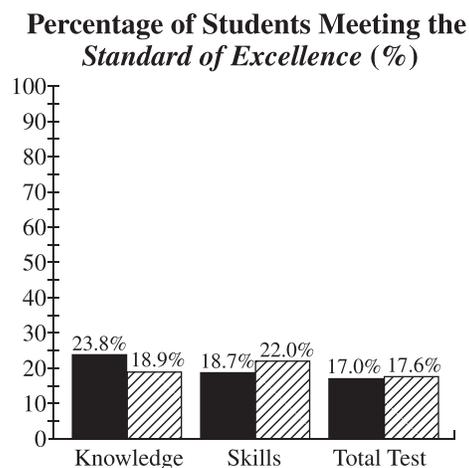
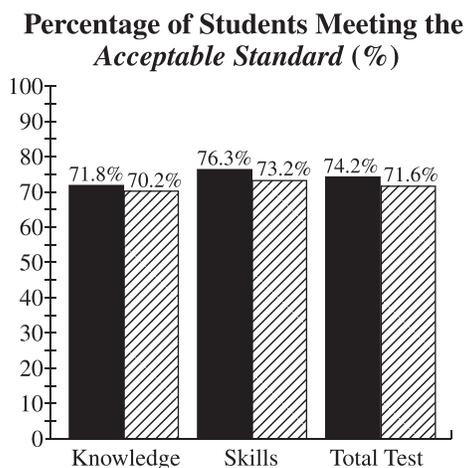
A total of 1 694 students wrote the 2012 Grade 9 Knowledge and Employability Mathematics Achievement Test.

### What Was the Test Like?

The 2012 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 2012 are similar to 2011, as shown in the graphs below. Out of a total possible score of 50, the provincial average on the test was 31.6 (63.2%).



■ 2011 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2008 Grade 9 Knowledge and Employability Mathematics Achievement Test (based on those who wrote).

▨ 2012 Achievement Standards: The percentage of students in the province who met the *acceptable standard* and the *standard of excellence* on the 2011 Grade 9 Knowledge and Employability Mathematics Achievement Test (based on those who wrote).

## ***2012 Test Blueprint and Student Achievement***

In 2012, 71.6% 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 2012 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	
<b>Number</b> <ul style="list-style-type: none"> <li>• Number Concepts</li> <li>• Number Operations</li> </ul>			<b>10.6/17 (62.3%)</b>
<b>Patterns and Relations</b> <ul style="list-style-type: none"> <li>• Patterns and Relationships</li> <li>• Variables and Equations</li> </ul>			<b>3.8/6 (63.3%)</b>
<b>Shape and Space</b> <ul style="list-style-type: none"> <li>• Measurement</li> <li>• 3-D Objects and 2-D Shapes</li> <li>• Transformations</li> </ul>			<b>10.4/17 (61.1%)</b>
<b>Statistics and Probability</b> <ul style="list-style-type: none"> <li>• Collecting and Analyzing Information</li> </ul>			<b>6.8/10 (68.0%)</b>
<b>Provincial Student Achievement (Average Raw Score and Percentage)</b>	<b>11.8/17 (69.4%)</b>	<b>19.9/33 (60.3%)</b>	<b>Total Test Raw Score 31.6 (63.2%)</b>

## ***Commentary on 2012 Student Achievement***

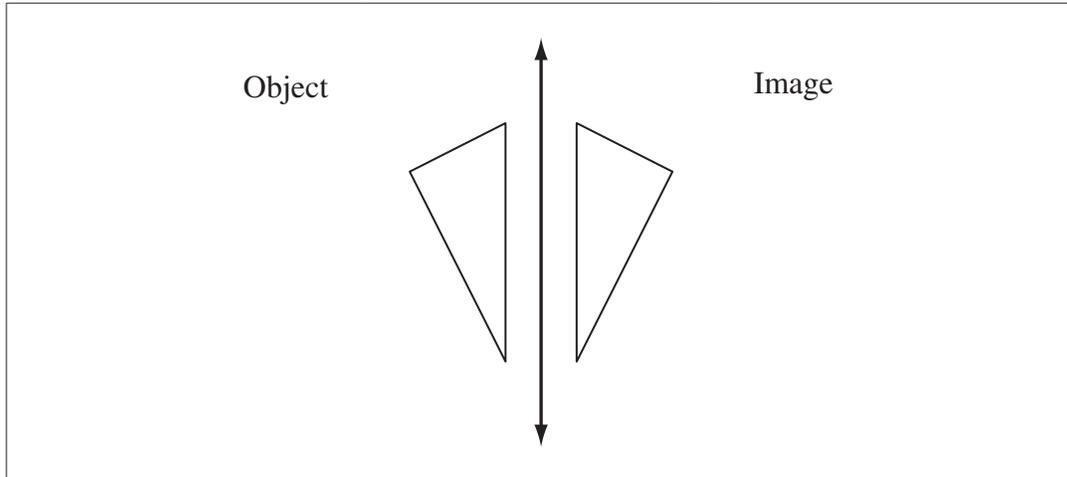
The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2012 Grade 9 Knowledge and Employability Mathematics Achievement Test. Four sample questions are also provided to highlight some of these areas. These questions are no longer secured and will not be reused on future achievement tests.

### **Students demonstrated relative strength by being able to:**

- Round a given number to the nearest ten
- Interpret information represented in a multiple-line graph to identify a fact
- Examine and identifying a given translation
- Identify the position of an integer on a given number line
- Identify a location on a coordinate grid using a set of written instructions

For **multiple-choice question 28**, students had to examine and identify a given translation. Approximately 94.1% of students who met the *acceptable standard* and 98.7% of students who met the *standard of excellence* answered this question correctly.

Use the following diagram to answer question 28.



**28.** Which transformation is shown in the diagram?

- A. Reflection
- B. Rotation
- C. Slide
- D. Turn

88.8% of the students chose A (correct answer)

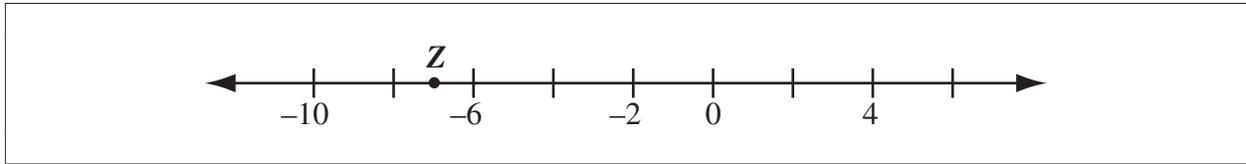
5.4% of the students chose B

3.5% of the students chose C

2.1% of the students chose D

For **multiple-choice question 33**, students had to identify the position of an integer on a given number line. Approximately 90.5% of students who met the *acceptable standard* and about 98.0% of students who met the *standard of excellence* answered this question correctly.

Use the following number line to answer question 33.



**33.** Which number is represented by point *Z* on the number line above?

- A.** -5
- B.** -6
- C.** -7
- D.** -9

9.6% of the students chose A

5.5% of the students chose B

82.5% of the students chose C (correct answer)

2.2% of the students chose D

**Students demonstrated relative difficulty with:**

- Solving an addition problem using pictorial representations of fractions
- Analyzing a given pattern to extend and complete the pattern
- Reading and interpreting information represented in a multiple-line graph to make a comparison based on the data
- Calculating the perimeter of a given shape
- Calculating the area of a rectangle given the measurements of the shape

For **multiple-choice question 21**, students had to analyze a given pattern to extend and complete the pattern. Approximately 51.1% of students who met the *acceptable standard* and 87.2% of student who met the *standard of excellence* answered this question correctly.

*Use the following information to answer question 21.*

Mel runs 1 kilometre on her first day of training. Mel doubles the distance she runs on each day of training after her first day.

**21.** How far does Mel run on the fifth day of her training?

- A.** 2 kilometres
- B.** 4 kilometres
- C.** 8 kilometres
- D.** 16 kilometres

6.7% of the students chose A

8.9% of the students chose B

34.8% of the students chose C

49.1% of the students chose D (correct answer)

For **numerical-response question 4**, students had to calculate the area of a rectangle given the measurements of the shape. Approximately 49.1% of students who met the *acceptable standard* and 79.9% of student who met the *standard of excellence* answered this question correctly.

*Use the following information to answer numerical-response question 4.*

A rectangle has the following measurements:

- Length: 15 ft
- Width: 10 ft

### **Numerical Response**

**4.** What is the area of the rectangle?

**Answer:** \_\_\_\_\_  $\text{ft}^2$

(Record your answer in the numerical-response section on the answer sheet.)

46.5% of the students answered correctly

# *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](http://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 directives, guidelines, and procedures; calculator and computer policies; test accommodations; test marking and results; field testing; resources and web documents; forms and samples; and 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 3, 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 3, 6, and 9 English Language Arts and Français/French Language Arts, 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 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 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 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 as well as descriptions of and sample questions for each achievement test subject.

## **Involvement of Teachers**

Teachers of grades 3, 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.