

**Alberta Provincial  
Achievement Testing**

**Assessment  
Highlights  
2015–2016**

**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 2016 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 2016 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 1 799 students wrote the 2016 Grade 9 Knowledge and Employability Mathematics Achievement Test.

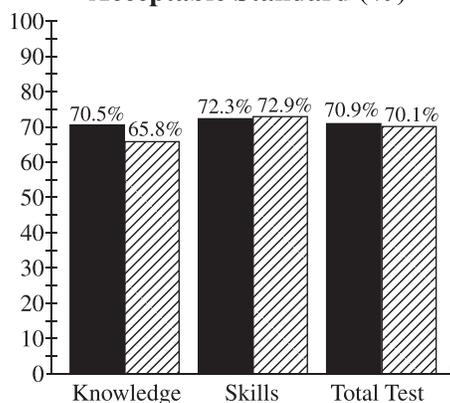
### **What Was the Test Like?**

The 2016 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.

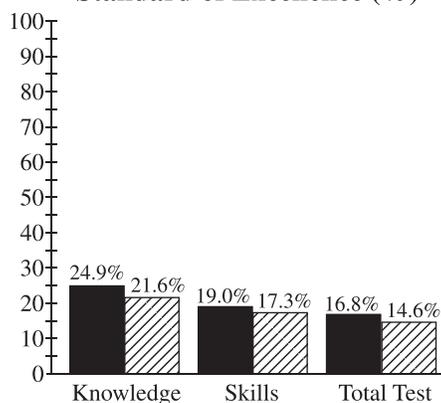
### **How Well Did Students Do?**

The percentages of students meeting the acceptable standard and the standard of excellence in 2016 compared with 2015 are shown in the graphs below. Out of a possible total score of 50, the provincial average on the test was 31.2 (62.4%).

**Percentage of Students Meeting the Acceptable Standard (%)**



**Percentage of Students Meeting the Standard of Excellence (%)**



 2015 Achievement Standards: The percentage of students in the province who met the acceptable standard and the standard of excellence on the 2015 Grade 9 Knowledge and Employability Mathematics Achievement Test (based on those who wrote).

 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).

## *2016 Test Blueprint and Student Achievement*

In 2016, 70.1% of students who wrote the test achieved the acceptable standard on the Grade 9 Knowledge and Employability Mathematics Achievement Test, and 14.6% of students achieved the standard of excellence.

The blueprint below shows the reporting categories and test sections (curricular content areas) by which 2016 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>11.6/19</b> <b>(61.1%)</b>
<b>Patterns and Relations</b> <ul style="list-style-type: none"> <li>• Patterns and Relationships</li> <li>• Variables and Equations</li> </ul>			<b>3.7/6</b> <b>(61.7%)</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>10.9/18</b> <b>(60.6%)</b>
<b>Statistics and Probability</b> <ul style="list-style-type: none"> <li>• Collecting and Analyzing Information</li> </ul>			<b>4.9/7</b> <b>(70.0%)</b>
<b>Provincial Student Achievement (Average Raw Score and Percentage)</b>	<b>10.7/17</b> <b>(62.9%)</b>	<b>20.5/33</b> <b>(62.1%)</b>	<b>Total Test Raw Score</b> <b>31.2/50</b> <b>(62.4%)</b>

## *Commentary on 2016 Student Achievement*

The following is a brief summary of the areas where most students experienced difficulties and demonstrated strengths on the 2016 Grade 9 Knowledge and Employability Mathematics Achievement Test. Three 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:**

- calculate and convert decimal numbers to determine the equivalent percentages;
- round a given number to the nearest unit;
- apply arithmetic operations to solve a problem in an everyday context (related to rate);
- examine data presented in a chart to summarize a pattern;
- analyze the distribution of data presented to draw a conclusion.

For **multiple-choice question 2**, students had to calculate and convert decimal numbers to determine the equivalent percentages. Approximately 82.1% of students who met the acceptable standard and 95.3% of students who met the standard of excellence answered this question correctly.

2. Which of the following numbers is equivalent to 85%?
- A. 0.085
  - B. 0.85
  - C. 8.5
  - D. 85

4.8% of the students chose A

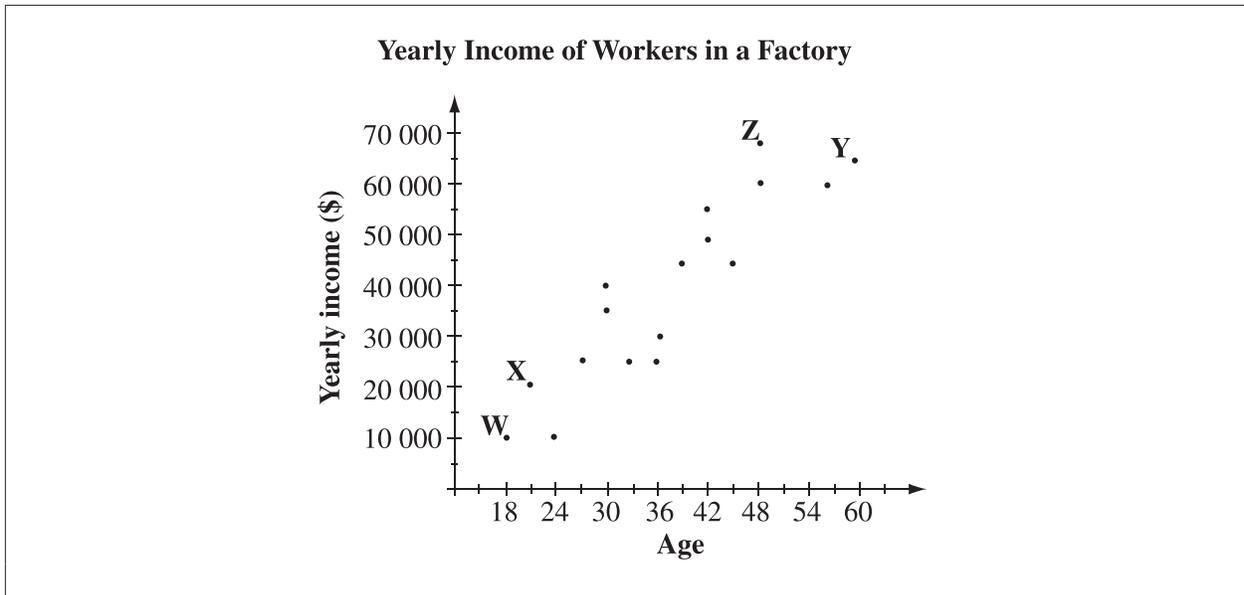
79.3% of the students chose B (correct answer)

5.6% of the students chose C

10.2% of the students chose D

For **multiple-choice question 35**, students had to analyze the distribution of data presented to draw a conclusion. Approximately 89.6% of students who met the acceptable standard and 98.2% of students who met the standard of excellence answered this question correctly.

Use the following information to answer question 35.



35. Which point represents the **greatest** yearly income?

- A. Point W
- B. Point X
- C. Point Y
- D. Point Z

4.4% of the students chose A  
4.7% of the students chose B  
8.0% of the students chose C  
82.6% of the students chose D (correct answer)

**Students experienced relative difficulty with:**

- interpreting information presented in a graph to identify a relationship in order to solve an everyday problem
- applying arithmetic operations using common factors to solve an everyday problem
- determining the measure of a given angle
- using a measurement concept (volume) to solve an everyday problem
- comparing and ordering a given set of positive and negative numbers

For **multiple-choice question 40**, students had to compare and order a given set of positive and negative numbers. Approximately 47.2% of students who met the acceptable standard and 79.8% of students who met the standard of excellence answered this question correctly.

*Use the following information to answer question 40.*

12, 1, -1, 5, -2, 0, -3, -5
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- 40.** When the integers above are listed in order from **least** to **greatest**, what is the fourth integer?
- A.** -5
  - B.** -2
  - C.** -1
  - D.** 0

21.5% of the students chose A  
17.1% of the students chose B  
43.1% of the students chose C (correct answer)  
17.8% of the students chose D

# *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.