Alberta Provincial Achievement Testing

Assessment Highlights 2016–2017

GRADE 6

Mathematics

This document contains assessment highlights from the 2017 Grade 6 Mathematics Achievement Test.

Assessment Highlights provides information about the overall test, the test blueprint, and student performance on the achievement test that was administered in 2017. Also provided is information on student performance at the acceptable standard and the standard of excellence on selected items from the 2017 Grade 6 Mathematics Achievement Test. This information is intended for teachers and is best used in conjunction with multi-year and detailed school reports that are available in schools via the extranet. *Assessment Highlights* reports for all 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 extranet.

All released achievement tests, including test blueprints, answer keys with the item difficulty, reporting category, test section, and item description for each test item, are posted on the Alberta Education website (see Achievement Documents).

These materials, along with the program of studies and subject bulletins, provide information that can be used to inform instructional practice.

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

This document was written primarily for:

Students	
Teachers	✓ of Grade 6 Mathematics
Administrators	✓
Parents	
General Audience	
Others	

Contents

The 2017 Grade 6 Mathematics Achievement Test

This report provides teachers, school administrators, and the public with an overview of the performance of those students who wrote the 2017 Grade 6 Mathematics Achievement Test. It complements the detailed school and jurisdiction reports.

How Many Students Wrote the Test?

A total of 44 792 students wrote the 2017 Grade 6 Mathematics Achievement Test. The English form of the test was written by 41 187 students, and the French form of the test was written by 3 605 students.

What Was the Test Like?

The 2017 Grade 6 Mathematics Achievement Test consisted of two parts: **Part A** and **Part B**.

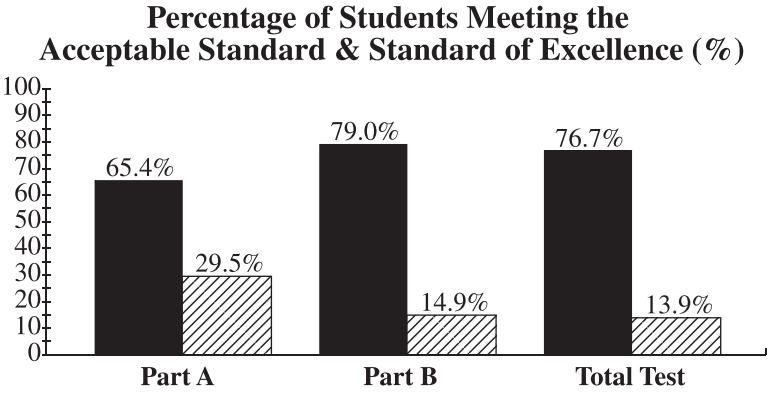
Part A consisted of 15 questions and represented 10% of the final overall test score. There were three addition questions, four subtraction questions, four multiplication questions, and four division questions. The format of the questions was numerical-response, which required students to generate a response (in symbolic form) to a particular problem, rather than selecting a response from a list of four options. Each response consisted of a maximum of four digits or, if a decimal point occurred in the answer, three digits.

Part B consisted of 40 questions and represented 90% of the final overall test score. The format of the questions was multiple choice, which provided students with four response options of which only one was correct. In keeping with the intent of the 2007 Program of Studies, the questions on the test required students to apply their understanding of one or more mathematical concepts from within and/or across the four strands: Number, Patterns and Relations, Shape and Space, and Statistics and Probability. As they solved the mathematical problems, students were expected to use the interrelated mathematical processes of Communication, Connections, Mental Mathematics and Estimation, Problem Solving, Reasoning, and Visualization. A detailed explanation of these mathematical processes is in the Alberta K–9 Mathematics Program of Studies.

How Well Did Students Do?

The percentages of students meeting the acceptable standard and the standard of excellence in 2017 are shown in the graph below. In 2017, 76.7% of students who wrote the Grade 6 Mathematics Achievement Test achieved the acceptable standard, and 13.9% of students who wrote achieved the standard of excellence.

The provincial average on **Part A** was 9.2/15 (61.3%), while the provincial average on **Part B** was 24.6/40 (61.5%). The provincial average on the **Total Test** was 61.5%. The results presented in this report are based on scores of all students who wrote the test. Detailed provincial assessment results are provided in school and jurisdiction reports.



The percentage of students in the province who met the acceptable standard on the 2017 Grade 6 Mathematics Achievement Test (based on those who wrote)

The percentage of students in the province who met the standard of excellence on the 2017 Grade 6 Mathematics Achievement Test (based on those who wrote)

2017 Test Blueprint and Student Achievement

The blueprint below shows how the questions on the test were classified and includes the average raw score in each category for all Grade 6 students who wrote this test.

Part A Test Blueprint

Program of Study Strands	Reporting Category: Number Operations				Provincial Student Achievement (Average Raw Score and Percentage)
	Addition	Subtraction	Multiplication	Division	
Number	**3**	**4**	**4**	**4**	**9.2/15 (61.3%)**
Provincial Student Achievement (Average Raw Score and Percentage)	**2.2/3 (73.3%)**	**2.3/4 (57.5%)**	**2.6/4 (65.0%)**	**2.2/4 (55.0%)**	

Part B Test Blueprint

Program of Study Strands	Level of Complexity*			Provincial Student Achievement (Average Raw Score and Percentage)
	Low	Moderate	High	
Number	**8**	**4**	**3**	**9.7/15 (64.7%)**
Patterns and Relations	**1**	**7**	**1**	**6.1/9 (67.8%)**
Shape and Space	**4**	**4**	**1**	**5.1/9 (56.7%)**
Statistics and Probability	**1**	**3**	**3**	**3.7/7 (52.9%)**
Provincial Student Achievement (Average Raw Score and Percentage)	**9.5/14 (67.9%)**	**11.7/18 (65.0%)**	**3.4/8 (42.5%)**	**Raw Score 24.6/40 (61.5%)**

*Each question is categorized according to its level of complexity (low, moderate, or high). Descriptions of the levels of complexity are in the *2017-2018 Mathematics 6 Subject Bulletin*.

Sample Questions from the 2017 Grade 6 Mathematics Achievement Test—Part A

The following ten items illustrate significant performance differences between students who performed at the standard of excellence, at the acceptable standard, and below the acceptable standard.

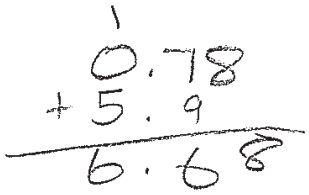
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
2	6.68	76.3%	635	N.2	Solve a problem involving addition of decimal numbers, with regrouping (Gr.5, N.11)

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	97.5%	51	5.87 (42)	6.65 (34)	6.69 (25)
Students Achieving Acceptable Standard* (n = 16 089)	84.6%	167	5.87 (639)	1.37 (570)	13.7 (139)
Students Below Acceptable Standard (n = 15 440)	49.6%	606	5.87 (2353)	1.37 (1603)	3.7 (325)

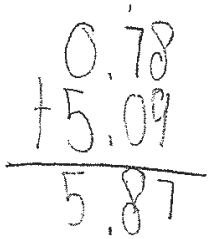
*Includes those students who achieved the acceptable standard but not the standard of excellence

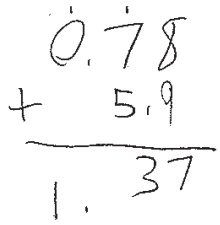
2. What is 0.78 + 5.9?

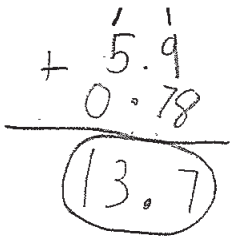
Most students applied the standard algorithm for addition to solve this item as shown below.



19.0% of students provided a solution that was implausible, i.e., either less than 6 or greater than 7, as illustrated by the following examples. The solutions of 1.37 and 5.87 are in fact less than the value of one of the addends. The errors illustrate the incorrect application of the standard algorithm for addition and a lack of understanding of place value.







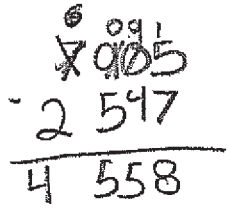
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
3	4558	57.9%	1561	N.2	Solve a problem involving subtraction of whole numbers, with regrouping (Gr.4, N.3)

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	91.6%	127	4458 (171)	4568 (96)	4658 (86)
Students Achieving Acceptable Standard* (n = 16 089)	65.0%	472	3568 (802)	4458 (518)	4568 (486)
Students Below Acceptable Standard (n = 15 440)	22.2%	1423	5442 (2523)	3568 (1084)	4568 (487)

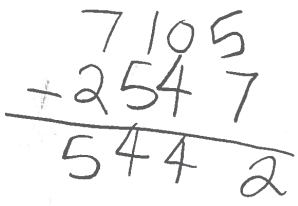
*Includes those students who achieved the acceptable standard but not the standard of excellence

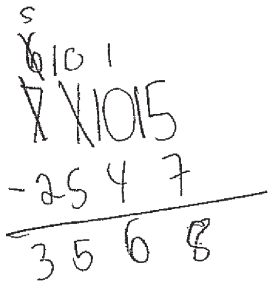
3. What is 7 105 – 2 547?

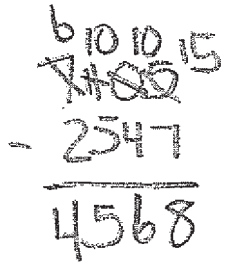
Most students applied the standard algorithm for subtraction to solve this item as shown below.



24.7% of students provided a solution that was implausible, i.e., either less than 4000 or greater than 5000. The errors shown below illustrate the incorrect application of the standard algorithm for subtraction.







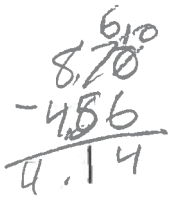
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
4	4.14	55.5%	882	N.2	Solve a problem involving subtraction of whole numbers, with regrouping (Gr.4, N.3)

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	95.1%	77	4.26 (359)	3.14 (43)	414 (22)
Students Achieving Acceptable Standard* (n = 16 089)	60.8%	282	4.26 (3631)	3.69 (295)	4.31 (270)
Students Below Acceptable Standard (n = 15 440)	16.4%	826	4.26 (5312)	4.31 (989)	4.49 (550)

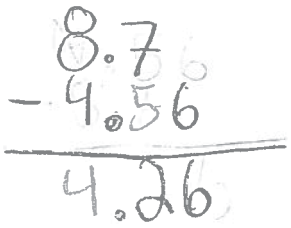
*Includes those students who achieved the acceptable standard but not the standard of excellence

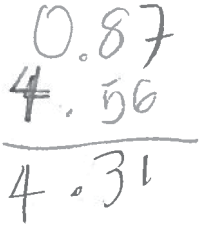
4. What is 8.7 – 4.56?

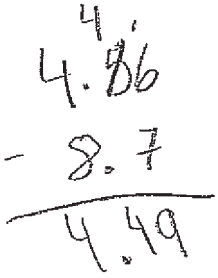
Most students applied the standard algorithm for subtraction to solve this item as shown below.



11.8% of students provided a solution that was implausible, i.e., either less than 4 or greater than 5. The errors shown below illustrate the incorrect application of the standard algorithm for subtraction and a lack of understanding of place value. In some cases, the smaller value of the two terms was treated as the minuend and the larger value as the subtrahend.







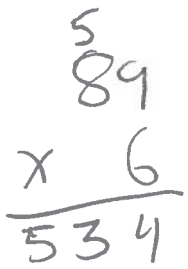
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
5	534	66.3%	1891	N.2	Solve a problem involving multiplication of a 2-digit whole number by a 1-digit whole number (Gr.4, N.6)

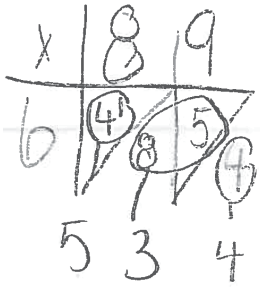
Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	93.8%	130	516 (96)	634 (54)	524 (48)
Students Achieving Acceptable Standard* (n = 16 089)	75.6%	515	516 (258)	524 (206)	544 (167)
Students Below Acceptable Standard (n = 15 440)	33.6%	1790	102 (336)	524 (244)	4854 (202)

*Includes those students who achieved the acceptable standard but not the standard of excellence

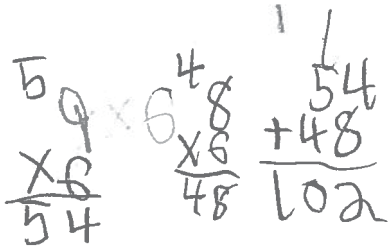
5. What is 89 × 6?

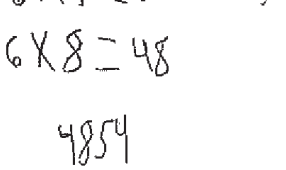
Most students applied the standard algorithm for multiplication to solve this item; however, some students used an array, as shown below.

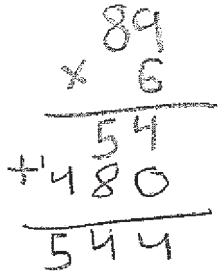




16.7% of students provided a solution that was implausible, i.e., either less than 400 or greater than 600. While the errors shown below illustrate that the students can recall their multiplication facts, they only demonstrated a partial understanding of the standard algorithm for multiplication in relation to place value.







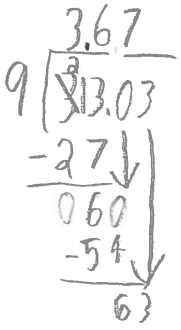
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
8	3.67	47.6%	1957	N.8	Demonstrate an understanding of division of a decimal by a 1-digit natural number divisor.

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	90.4%	172	367 (282)	36.7 (101)	2.67 (62)
Students Achieving Acceptable Standard* (n = 16 089)	51.7%	824	367 (1001)	36.7 (662)	3.7 (291)
Students Below Acceptable Standard (n = 15 440)	7.2%	1765	3 (717)	367 (429)	33.3 (387)

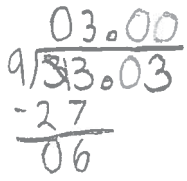
*Includes those students who achieved the acceptable standard but not the standard of excellence

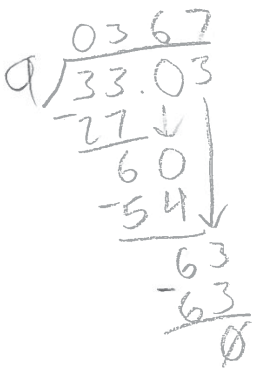
8. What is 33.03 ÷ 9?

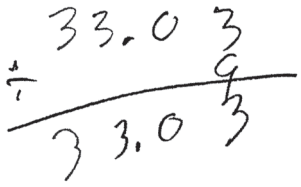
Most students applied the standard algorithm for long division to solve this item.



28.9% of students provided a solution that was implausible, i.e., either less than or equal to 3 or greater than or equal to 4. The most common errors were 367 and 36.7, which indicates that students missed or did not know how to position the decimal point. Another common error resulted from not knowing what to do with the zero in the tenth position and thus having a whole-number answer with a remainder. A completely different error resulted from dividing each digit of 33.03 into 9, as shown by the last example below.







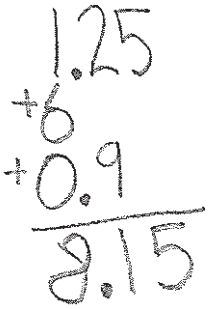
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
9	8.15	53.1%	921	N.2	Solve a problem involving addition of a whole number and decimal numbers, with regrouping.

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	89.5%	100	2.21 (456)	7.34 (387)	7.15 (165)
Students Achieving Acceptable Standard* (n = 16 089)	55.5%	330	2.21 (2411)	7.34 (1463)	1.4 (785)
Students Below Acceptable Standard (n = 15 440)	19.6%	858	7.34 (2458)	2.21 (2000)	1.4 (1997)

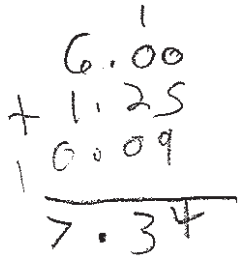
*Includes those students who achieved the acceptable standard but not the standard of excellence

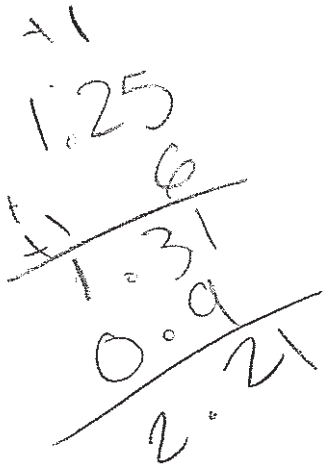
9. What is 1.25 + 6 + 0.9?

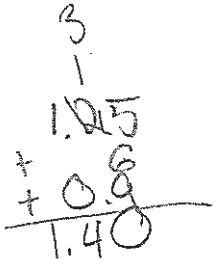
Most students applied the standard algorithm for adding decimals to the hundredths to solve this item.



29% of students provided a solution that was implausible, i.e., either less than 7 or greater than 9. The most common errors were 1.4 and 2.21, which are values less than one of the addends. The incorrect alignment of the decimal points indicates a lack of knowledge of place value.







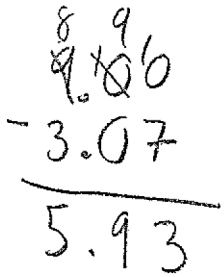
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
10	5.93	45.3%	869	N.2	Solve a problem involving subtraction of a decimal number from a whole number, with regrouping.

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	91.2%	99	607 (292)	2.98 (193)	6.93 (147)
Students Achieving Acceptable Standard* (n = 16 089)	43.7%	328	6.07 (2644)	2.98 (1861)	5.03 (735)
Students Below Acceptable Standard (n = 15 440)	8.1%	789	6.07 (3369)	3.02 (1380)	2.98 (1228)

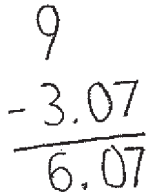
*Includes those students who achieved the acceptable standard but not the standard of excellence

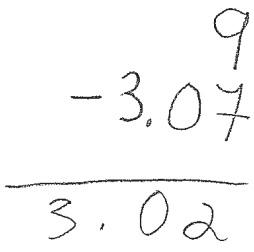
10. What is 9 – 3.07?

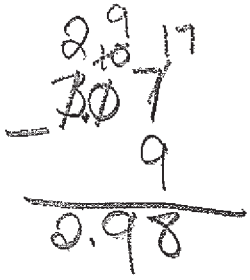
Most students applied the standard algorithm for subtracting whole numbers and decimals to the hundredths to solve this item.



45.7% of students provided a solution that was implausible, i.e., either less than 5 or greater than 6. The common solution of 2.98 was caused by the reversal of the subtrahend and minuend and treating the value of 9 as 0.09.







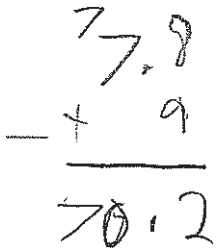
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
11	70.2	57.4%	1807	N.8	Demonstrate an understanding of multiplication of a decimal by a 1-digit whole number multiplier.

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	91.8%	134	702 (301)	80.2 (161)	7.02 (76)
Students Achieving Acceptable Standard* (n = 16 089)	66.0%	612	702 (882)	7.02 (537)	80.2 (309)
Students Below Acceptable Standard (n = 15 440)	19.7%	1701	63.8 (968)	7.02 (506)	702 (502)

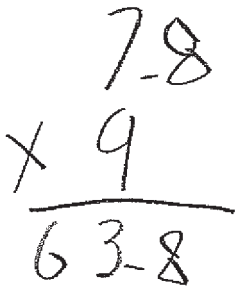
*Includes those students who achieved the acceptable standard but not the standard of excellence

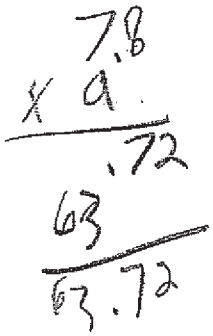
11. What is 7.8 × 9?

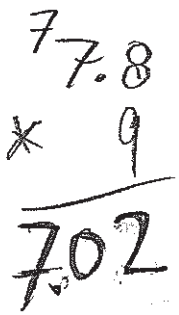
Most students applied the standard algorithm for multiplication involving a whole number and decimal value to solve this item.

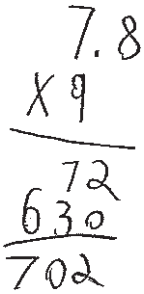


30.1% of students provided a solution that was implausible, i.e., either less than 65 or greater than 80. The common solutions of 7.02 and 702 illustrate knowledge of multiplication facts and the application of the standard algorithm for multiplication but not for problems involving a decimal number.









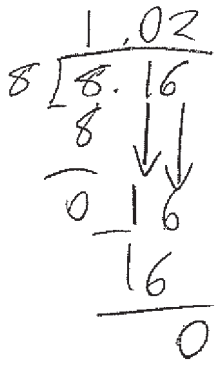
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
14	1.02	51.1%	1227	N.8	Demonstrate an understanding of division of a decimal by a 1-digit natural number divisor.

Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	89.5%	66	1.2 (1006)	0.12 (41)	1.08 (34)
Students Achieving Acceptable Standard* (n = 16 089)	57.3%	322	1.2 (3468)	102 (346)	1 (285)
Students Below Acceptable Standard (n = 15 440)	12.4%	1159	1.2 (2219)	1.16 (813)	1 (692)

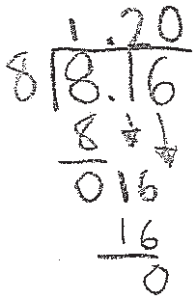
*Includes those students who achieved the acceptable standard but not the standard of excellence

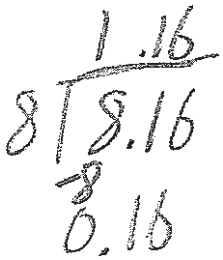
14. What is 8.16 ÷ 8?

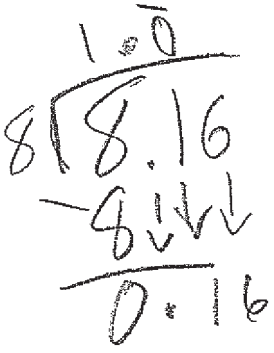
Most students applied the standard algorithm for long division.



34.6% of students provided a solution that was implausible, i.e., either less than or equal to 1 or greater than or equal to 1.2. The most common error was 1.2, which was caused by students treating the 0.16 of 8.16 as 16 tenths.







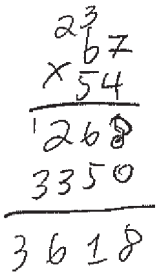
Item #	Key	% of Students with Correct Solution	# of Unique Errors	Strand & Outcome	Item Description
15	3618	50.4%	3004	2	Solve a problem involving multiplication of a 2-digit whole number by a 2-digit whole number (Gr.5, N.5)

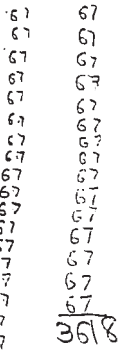
Standards Achieved by Students on Part A	% of Students with Correct Solution	# of Unique Errors	Three Most Common Errors (Number of Students)		
Students Achieving Standard of Excellence (n = 13 198)	88.5%	299	603 (156)	3638 (106)	3518 (68)
Students Achieving Acceptable Standard* (n = 16 089)	56.3%	1216	603 (675)	328 (497)	3638 (214)
Students Below Acceptable Standard (n = 15 440)	13.0%	2537	328 (1352)	603 (395)	3028 (295)

*Includes those students who achieved the acceptable standard but not the standard of excellence

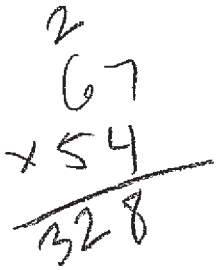
15. What is 67 × 54?

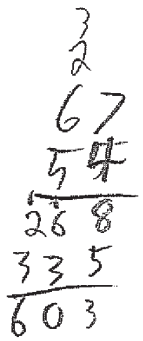
Most students applied the standard algorithm for multiplication; however, some students did resort to using the strategy of addition.

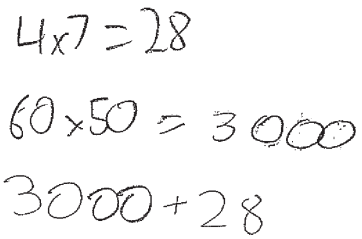




23.4% of students provided a solution that was implausible, i.e., less than 3000. The most common error was 328, which indicates a lack of procedural knowledge for using the standard algorithm for multiplication. In other cases, students appear to have difficulty consistently applying the algorithm when required to regroup multiple times.







Sample Questions from the 2017 Grade 6 Mathematics Achievement Test—Part B

The following eight items illustrate significant performance differences between students who performed at the standard of excellence, at the acceptable standard, and below the acceptable standard.

Item #	Key	Strand & Outcome	Item Complexity	Item Description
3	B	N.2	Moderate	Solve a given problem involving the multiplication, addition, and subtraction of decimal numbers (Gr.5, N.11)

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	0.4	88.7	10.6	0.2	0.1
Students Achieving Acceptable Standard*	4.5	66.1	25.9	3.4	0.1
Students Below Acceptable Standard	13.3	31.0	37.5	17.6	0.6

*Includes those students who achieved the acceptable standard but not the standard of excellence

Candace earns $5.75 an hour for babysitting and $6.40 an hour for doing yardwork. Candace saves the money she earns from 8 hours of babysitting and 3 hours of yardwork.

3. How much **more** money does Candace need to save to buy a camera that costs $119.80?

A. $51.35

B. $54.60

C. $65.20

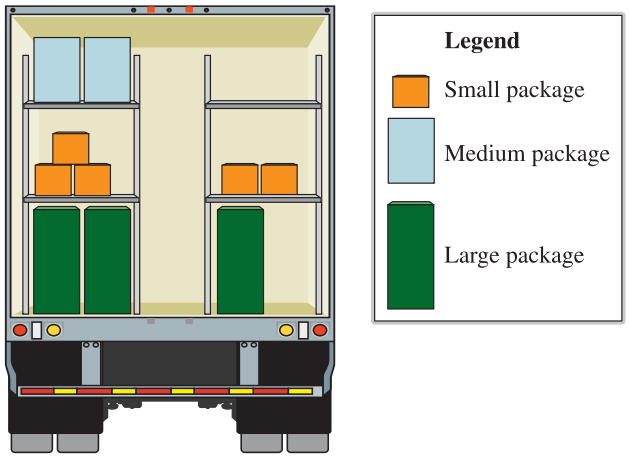
D. $68.45

Item #	Key	Strand & Outcome	Item Complexity	Item Description
12	D	PR.5	High	Apply knowledge of the preservation of equality to solve a given problem

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	3.6	3.1	6.6	86.7	0.0
Students Achieving Acceptable Standard*	19.2	14.3	16.9	49.5	0.1
Students Below Acceptable Standard	40.2	24.9	18.9	15.5	0.5

*Includes those students who achieved the acceptable standard but not the standard of excellence

A total of 10 packages are arranged in the back of a cargo truck as shown in the diagram below. One large package has the same mass as two medium packages. One medium package has the same mass as three small packages.



12. How many small packages need to be loaded onto the right side of the truck to balance the load?

A. 8

B. 9

C. 12

D. 13

Item #	Key	Strand & Outcome	Item Complexity	Item Description
17	D	N.4	High	Determine the fraction described in a given context

Standards Achieved by Students on Part B	% of Student Responses				
	A	B	C	D	No Response
Students Achieving Standard of Excellence	0.4	11.3	9.1	79.1	0.1
Students Achieving Acceptable Standard*	5.5	27.0	23.5	43.7	0.3
Students Below Acceptable Standard	14.8	28.4	30.9	24.8	1.1

*Includes those students who achieved the acceptable standard but not the standard of excellence

Jenny's mom has 10 oranges to slice for Jenny's soccer team. Each orange will be sliced into 8 pieces of the same size. Jenny counts 66 pieces that have already been sliced.

17. The remaining pieces will be made out of

A. 1 orange

B. $1\frac{1}{4}$ oranges

C. $1\frac{1}{2}$ oranges

D. $1\frac{3}{4}$ oranges

Item #	Key	Strand & Outcome	Item Complexity	Item Description
21	A	PR.3	Moderate	Identify an expression that represents a given context

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	99.0	0.8	0.1	0.1	0.0
Students Achieving Acceptable Standard*	84.7	10.6	2.2	2.5	0.0
Students Below Acceptable Standard	45.0	30.8	13.4	9.6	1.2

*Includes those students who achieved the acceptable standard but not the standard of excellence

There are m boys and n girls on a soccer team. Each person carries 2 soccer balls.

21. Which of the following expressions could be used to represent the total number of soccer balls that are carried by all members of the soccer team?

A. $2 \times (m + n)$

B. $2 + (m + n)$

C. $m + 2n$

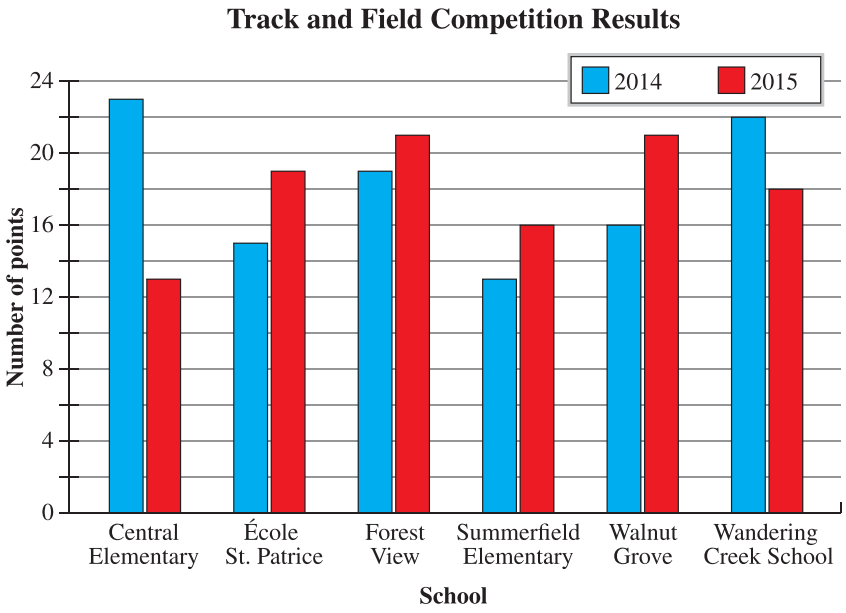
D. $2m + n$

Item #	Key	Strand & Outcome	Item Complexity	Item Description
31	B	SP.3	Moderate	Analyze and interpret data in a graph to draw a conclusion

	% of Student Responses				
Standards Achieved by Students on Part B	A	B	C	D	No Response
Students Achieving Standard of Excellence	1.1	96.0	2.5	0.4	0.0
Students Achieving Acceptable Standard*	8.4	73.9	12.8	4.7	0.2
Students Below Acceptable Standard	21.2	35.2	24.7	16.8	2.1

*Includes those students who achieved the acceptable standard but not the standard of excellence

The total number of points earned by six schools in track and field competitions in 2014 and 2015 is displayed in the graph below.



31. Which of the following statements is supported by information in the graph?

A. More than half of the schools earned 20 points or more in 2015.

B. More than half of the schools earned more points in 2015 than they did in 2014.

C. The school that earned the lowest number of points in 2014 also earned the lowest number of points in 2015.

D. The school that earned the highest number of points in 2014 also earned the highest number of points in 2015.

Item #	Key	Strand & Outcome	Item Complexity	Item Description
32	B	SP.4	Moderate	Determine the theoretical probability of outcomes in a probability experiment

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	5.0	90.6	2.8	1.6	0.0
Students Achieving Acceptable Standard*	12.7	49.3	20.7	16.8	0.5
Students Below Acceptable Standard	13.4	24.2	32.5	27.6	2.3

*Includes those students who achieved the acceptable standard but not the standard of excellence

Johann uses a 20-sided die to demonstrate theoretical probability. The sides of the die are numbered from 1 to 20. He calculates the theoretical probability of a particular outcome to be $\frac{5}{20}$.

32. For which of the following outcomes could Johann have calculated the theoretical probability?

A. A multiple of 3 is rolled.

B. A multiple of 4 is rolled.

C. An odd number is rolled.

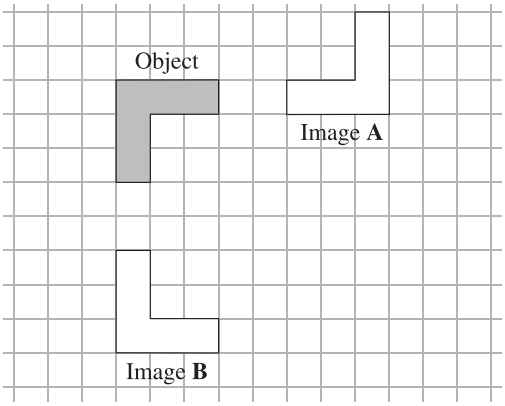
D. An even number is rolled.

Item #	Key	Strand & Outcome	Item Complexity	Item Description
38	B	SS.6	Moderate	Describe the transformations performed on a 2-D shape to produce two given images (Gr.5, SS.8; Gr.4, SS.6)

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	2.8	89.1	5.2	2.9	0.0
Students Achieving Acceptable Standard*	7.7	70.0	15.3	6.4	0.6
Students Below Acceptable Standard	17.4	41.5	27.0	11.3	2.8

*Includes those students who achieved the acceptable standard but not the standard of excellence

An object and its two images created by two separate transformations are shown below.



38. *Image A is a* ___***i***___ *of the object and Image B is a* ___***ii***___ *of the object.*

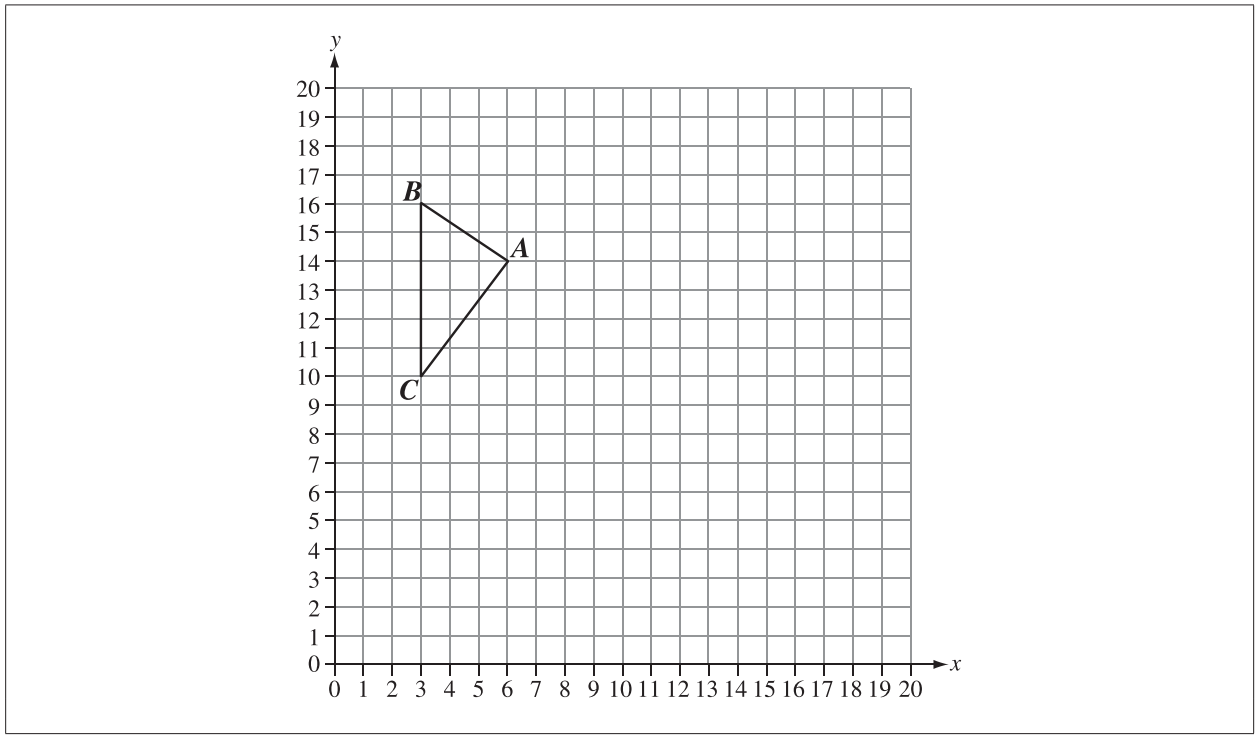
The statement above is completed by the information in row

Row	*i*	*ii*
A.	rotation	rotation
B.	rotation	reflection
C.	reflection	rotation
D.	reflection	reflection

Item #	Key	Strand & Outcome	Item Complexity	Item Description
39	B	SS.9	Low	Perform a transformation of a given 2-D shape in the first quadrant of the Cartesian plane and identify a coordinate of one vertex of the image

	% of Student Responses				
Standards Achieved by Students on Part B	**A**	**B**	**C**	**D**	**No Response**
Students Achieving Standard of Excellence	0.5	96.2	0.4	2.8	0.1
Students Achieving Acceptable Standard*	3.6	72.5	6.9	16.4	0.6
Students Below Acceptable Standard	12.6	33.3	24.7	26.5	2.9

*Includes those students who achieved the acceptable standard but not the standard of excellence



39. If ΔABC is translated 11 units right and 6 units down, then the y-coordinate of A' is

A. 3

B. 8

C. 12

D. 17

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.

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 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 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 each achievement test 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.