

North Carolina End-of-Grade Test—Grade 5 Mathematics

What is the Grade 5 test like? The North Carolina End-of-Grade (EOG)—Grade 5 test in mathematics assesses the fifth grade goals and objectives in the *North Carolina Mathematics Standard Course of Study* (adopted in May 1998). On the test, students are expected to demonstrate knowledge of important principles and concepts, and relate mathematical information to everyday situations. In order to align with the mathematics curriculum’s focus on inquiry instruction and higher-order thinking, the EOG—Grade 5 test in mathematics has an increased focus on processing information and higher-order thinking.

Each item on the EOG—Grade 5 test in mathematics is related to one of the fifth grade competency goals in the *North Carolina Mathematics Standard Course of Study*. The four competency goals for the grade 5 mathematics curriculum describe the knowledge and skills that are to be taught in all fifth grade classes in North Carolina and provide the basis for the content of the items on the test. Many of the items on the EOG—Grade 5 test in mathematics assess whether a student can move beyond memorization and apply process skills to the investigation of mathematics.

Table 1. Descriptive Information for the North Carolina End-of-Grade Test—Grade 5
Mathematics

Goal	Description of Goal	Percentage of Items on Test
1	The learner will understand and compute with rational numbers.	40%
2	The learner will demonstrate an understanding and use of the properties and relationships in geometry, and standard units of metric and customary measurement.	25%
3	The learner will demonstrate an understanding of patterns, relationships, and elementary algebraic representation.	16%
4	The learner will demonstrate an understanding and use of graphing, probability, and data analysis.	19%

How is the test administered? The EOG—Grade 5 test in mathematics consists of 80 multiple-choice questions and is administered in two parts: Calculator-Inactive (24 questions) and Calculator-Active (56 questions). Students may not use calculators during the Calculator-Inactive part (30%) of the test. Students may use calculators during the Calculator-Active part (70%) of the test. The test is administered during a fixed block of time within the last week (block schedule or summer school) or the last two weeks (traditional schedule) of the school year. Three equivalent forms are administered in each classroom to provide a breadth of information for curriculum evaluation and planning.

How was the test developed? The questions on the EOG—Grade 5 test in mathematics were written and reviewed by trained North Carolina teachers and educators during the 1999–2000 and 2000–2001 school years. Mathematics EOG—Grade 5 tests aligned to the *North Carolina Mathematics Standard Course of Study* (adopted in May 1998) were implemented statewide for the first time in the spring of the 2000–2001 school year.

What kinds of scores do students receive on the test? The scores on the End-of-Grade Tests in mathematics are reported on a developmental scale, which allows the measurement of growth in achievement across the grade levels. The scale scores range from 210 to 310. The use of scale scores provides for easier and more consistent interpretations of the results from test to test. The use of achievement levels provides an interpretation of student performance relative to a pre-determined standard. The four achievement levels are typically established by linking teacher judgments to the performance distribution of student scores from the field test or the first operational administration of the test.

Table 2. Achievement Levels for North Carolina End of Grade Test—Grade 5
Mathematics

Level	Description
1	Students performing at this level do not have sufficient mastery of knowledge and skills to be successful at a more advanced level in the content area.
2	Students performing at this level demonstrate inconsistent mastery of knowledge and skills and are minimally prepared to be successful at a more advanced level in the content area.
3	Students performing at this level consistently demonstrate mastery of the subject matter and skills and are well prepared for a more advanced level in the content area.
4	Students performing at this level consistently perform in a superior manner clearly beyond that required to be proficient in the subject matter and skills and are very well prepared for a more advanced level in the content area.

Sample Items The following pages contain samples of the types of items that appear on the North Carolina End-of-Grade Test—Grade 5 in mathematics. The objective indicates the curriculum objective the item is designed to assess. The thinking skill corresponds to the level of thinking the item requires as defined by a thinking skills framework adapted from *Dimensions of Thinking* by Robert J. Marzano and others.

For additional information: **Assessment Briefs:**
<http://www.ncpublicschools.org/accountability/testing/briefs/MathematicsScs/>
<http://www.ncpublicschools.org/accountability/testing/briefs/CalculatorRequirements/>

Mathematics Curriculum:
<http://www.ncpublicschools.org/curriculum>

Thinking Skills:
<http://www.ncpublicschools.org/accountability/testing/>

Additional Mathematics Sample Items:
<http://www.ncpublicschools.org/accountability/testing/eog/>

Grade 5 Math Sample Items

Calculator Inactive

1. Objective: 1.13
Thinking Skill: Applying

Canned milk is packed in cases of 24 cans. The whole case weighs 288 ounces. How much would $\frac{1}{4}$ of a case weigh?

- *A 72 ounces
- B 60 ounces
- C 48 ounces
- D 6 ounces

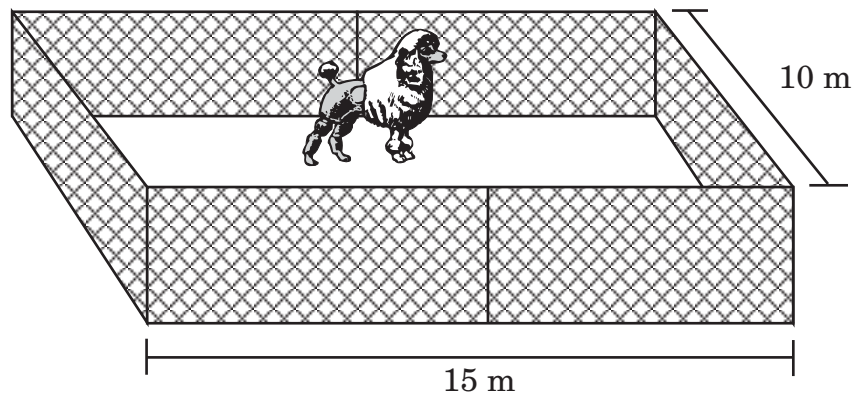
2. Objective: 1.18
Thinking Skill: Applying

Mr. Tanner's class has earned a pizza party, and Tiffany is in charge of ordering the pizza. She wants each of the 21 students in the class to have three pieces. If there are 12 slices in each pizza, how many pizzas should she order?

- A 3
- B 4
- C 5
- *D 6

3. Objective: 2.02
Thinking Skill: Applying

Ms. Rollins put a fence around her rectangular yard to keep her dog in.



How many meters of fencing did Ms. Rollins use?

- A 250 m
- B 150 m
- *C 50 m
- D 25 m

Calculator Active

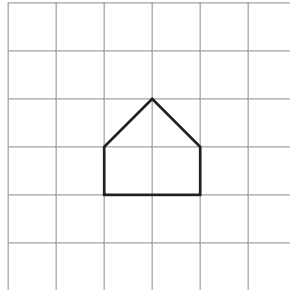
4. Objective: 1.18
Thinking Skill: Applying

The four members of the Chappell family went out for dinner. The total cost of the meal was \$34. If they used a \$5 coupon, how much was the cost per person?

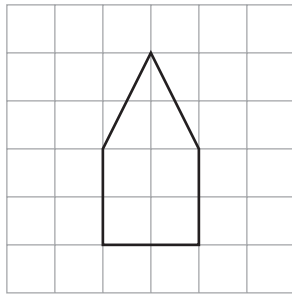
- A \$7.10
- *B \$7.25
- C \$8.20
- D \$8.50

5. Objective: 2.07
Thinking Skill: Analyzing

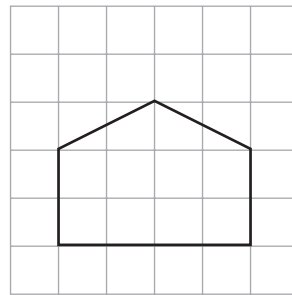
How would this picture look if it were drawn twice as large?



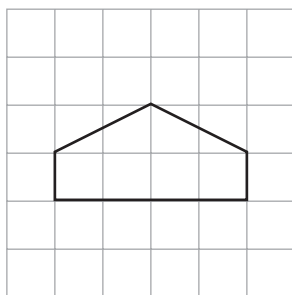
A



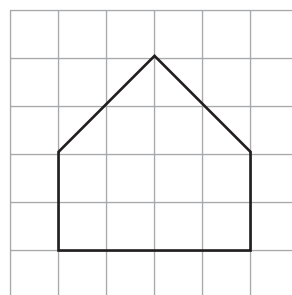
B



C



*D



6. Objective: 3.02
Thinking Skill: Analyzing

Which of these numbers is divisible by 3?

- A 61,234
- B 63,344
- *C 66,471
- D 67,214

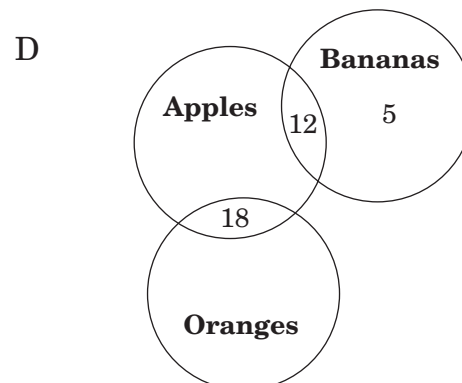
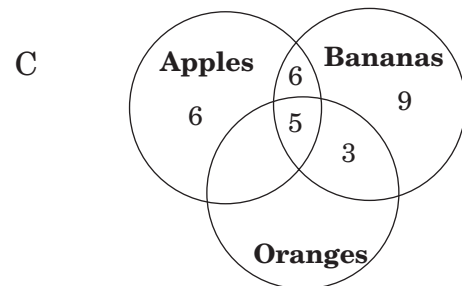
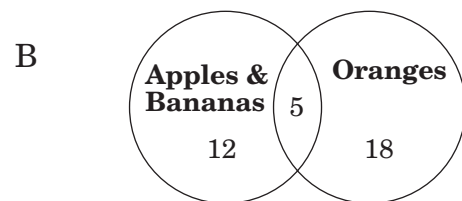
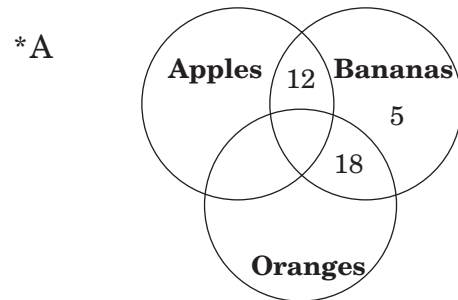
7. Objective: 3.05
Thinking Skill: Generating

There are 36 fifth graders in art class. The art teacher wants to arrange their pictures on the wall so that one is in the first row, two are in the second row, three are in the third row, etc. How many rows of pictures will there be?

- *A 8 rows
- B 9 rows
- C 10 rows
- D 11 rows

8. Objective: 4.04
Thinking Skill: Analyzing

A survey showed that 12 students in Mrs. Scott's class liked apples and bananas, 18 students liked oranges and bananas, and five students liked only bananas. Which Venn diagram shows this?



9. Objective: 4.05
Thinking Skill: Applying

The following are Tom's grades in science: 80, 85, 100, 78, 90. There will be only one more test this grading period. What is the lowest grade Tom can make and still have an 85 average in the class?

- A 70
- *B 77
- C 86
- D 100

10. Objective: 4.09
Thinking Skill: Analyzing

The bags pictured below contain red and green chips. If Jeff picks a chip at random, from which bag will he have the greatest chance of picking a red chip?

A



B



*C



D

