Georgia Milestones Assessment System

2014 Fall GACIS: Mathematics & Science

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Georgia Milestones

- Grades 3 – 8
  - End of Grade (EOG) in language arts, mathematics, science, social studies

- High School
  - End of Course (EOC) in 9th Grade Literature & Composition, American Literature & Composition, Coordinate Algebra, Analytic Geometry, Physical Science, Biology, US History, and Economics

Georgia Milestones: Unique Features

Blended: Criterion-Referenced and Norm-Referenced

Georgia Milestones will provide:

- criterion-referenced performance information in the form of four performance levels, depicting students' mastery of state standards

- norm-referenced performance information in the form of national percentiles, depicting how students' achievement compares to peers nationally

Note: To provide norm-referenced information, some norm-referenced items may not align to Georgia's content standards. Only aligned NRT items will contribute to proficiency designations.

Georgia Milestones: Embedded NRT

- Each content area/course test will contain 20 norm-referenced items.
- The 20 NRT items will provide a national percentile score to provide a barometer of national comparison.
- Approximately 10 of these items have been reviewed by Georgia educators for alignment to the grade level/course content standards.
  - Only those NRT items judged to be aligned by Georgia educators will contribute to the criterion-referenced proficiency designations of students.
- The remaining 10 or so items, while not necessarily aligned to the grade level/course content standards, will not contribute to the proficiency designation.

The NRT items were selected to reflect the full TerraNova subtest for each content area.

Georgia Milestones: Embedded NRT

- Teachers and students should be aware that the tests will include a small number of NRT items (10) for which students have not had direct instruction.
  - These items will contribute only the NRT score and will not contribute to the criterion-referenced score and proficiency designation that is used in promotion/retention, course grade, student growth, educator effectiveness measures, or accountability (CCRPI).
  - The content and skills measured within these items reflect more global concepts within the content area (such as, reading comprehension, language, mathematics, science, or social studies) that students encounter during the course of their matriculation. This is particularly true in science and social studies.

Georgia Milestones will included norm-referenced items that are not directly aligned to the grade level or course standards. These items will not impact student scores.

Georgia Milestones

- It is important to remember that Georgia Milestones is primarily a criterion-referenced test, reflecting the content standards for each grade and course
  - teachers should teach the Georgia state-adopted content standards and not the NRT standards

Remember: All important uses of the test results – for both students and educators – will be based on the criterion-referenced scores and proficiency determinations.

Georgia Milestones

General Test Parameters

- ELA will consist of 3 sections, 1 of which will focus mainly on writing
- Mathematics will consist of 2 sections
- Science will consist of 2 sections
- Social Studies will consist of 2 sections

Each section will be approximately 70 minutes.

Georgia Milestones

General Test Parameters: Mathematics

Criterion-Referenced

Total Number of Items: 53 / Total Number of Points: 58

Breakdown by Item Type:

- 50 Selected Response (worth 1 point each; 10 of which are aligned NRT)
- 2 Constructed Response (worth 2 points each)
- 1 Constructed Response (worth 4 points)

Norm-Referenced

- Total Number of Items: 20 (10 of which contribute to CR score)

Embedded Field Test

- Total field test items: 10

Total number of items taken by each student: 73

2013-2014 Student Achievement by Administration Mode: Mathematics

Course	Mode	Total	Mean Scale Score	Performance Level			
				Does Not Meet Expectations	Meets Expectations	Exceeds Expectations	Meets/Exceeds Expectations
Coordinate Algebra	**Online**	**55,292**	**401.0**	**52.5%**	**35.3%**	**12.2%**	**47.5%**
	Paper/Pencil	84,257	391.0	64.5%	29.1%	6.3%	**35.5%**
	Total	139,549	395.0	59.7%	31.6%	8.7%	40.3%
Analytic Geometry	**Online**	**48,904**	**401.2**	**52.5%**	**35.6%**	**11.9%**	**47.5%**
	Paper/Pencil	68,515	390.5	64.9%	29.2%	6.0%	**35.1%**
	Total	117,419	395.0	59.7%	31.8%	8.5%	40.3%

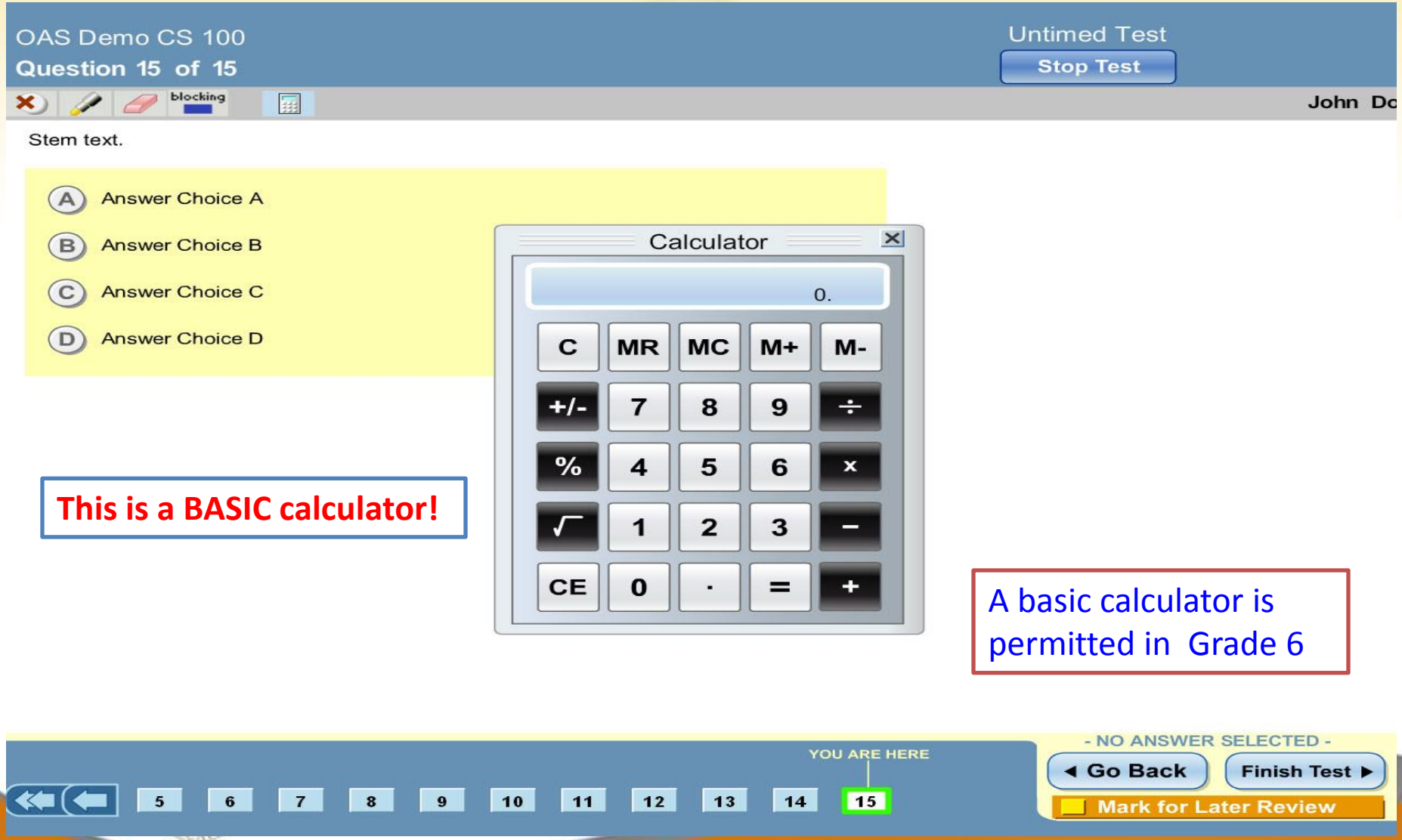
Georgia Milestones Calculator Policy

Content Area	Grade Level/Course	Type of Calculator
Mathematics	Grades 3 – 5 EOG	Not Allowed
	Grade 6 EOG	Basic[1]
	Grades 7 – 8 EOG	Scientific[2] or Basic[1]
	Coordinate Algebra EOC	Graphing[3] or Scientific[2]
	Analytic Geometry EOC	Graphing[3] or Scientific[2]
Science	Physical Science EOC	Scientific[2] or Basic[1]
Social Studies	Economics EOC	Scientific[2] or Basic[1]

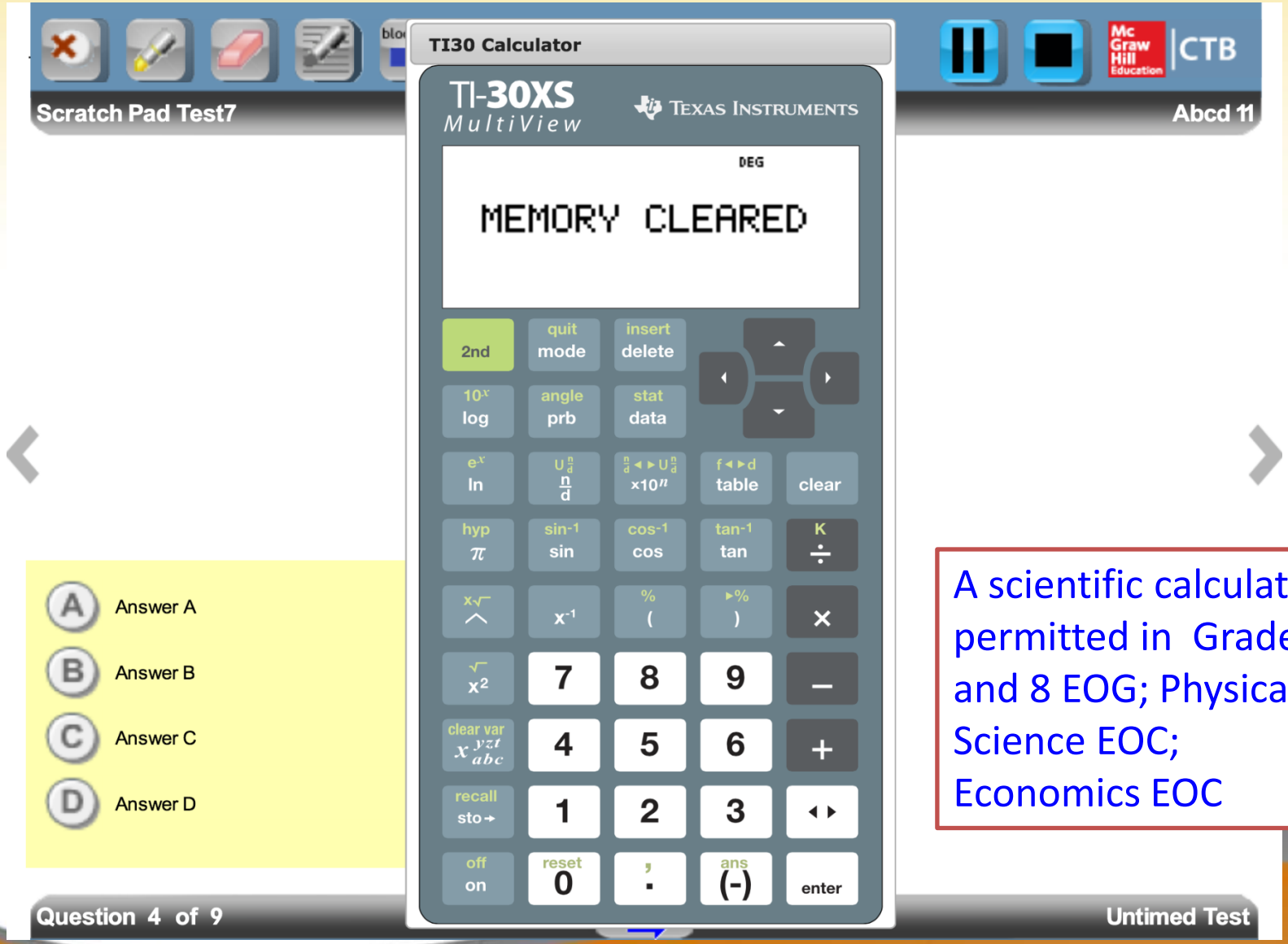
[1]Basic four-function calculator with square root and percentage functions.
[2]Scientific calculator with functionalities consistent with TI-30XS MV or similar models.
[3]Graphing calculator with functionalities consistent with TI-84 Plus SE or similar models.

Calculators are <u>not</u> permitted on certain designated sections of each mathematics test.

Online BASIC Calculator

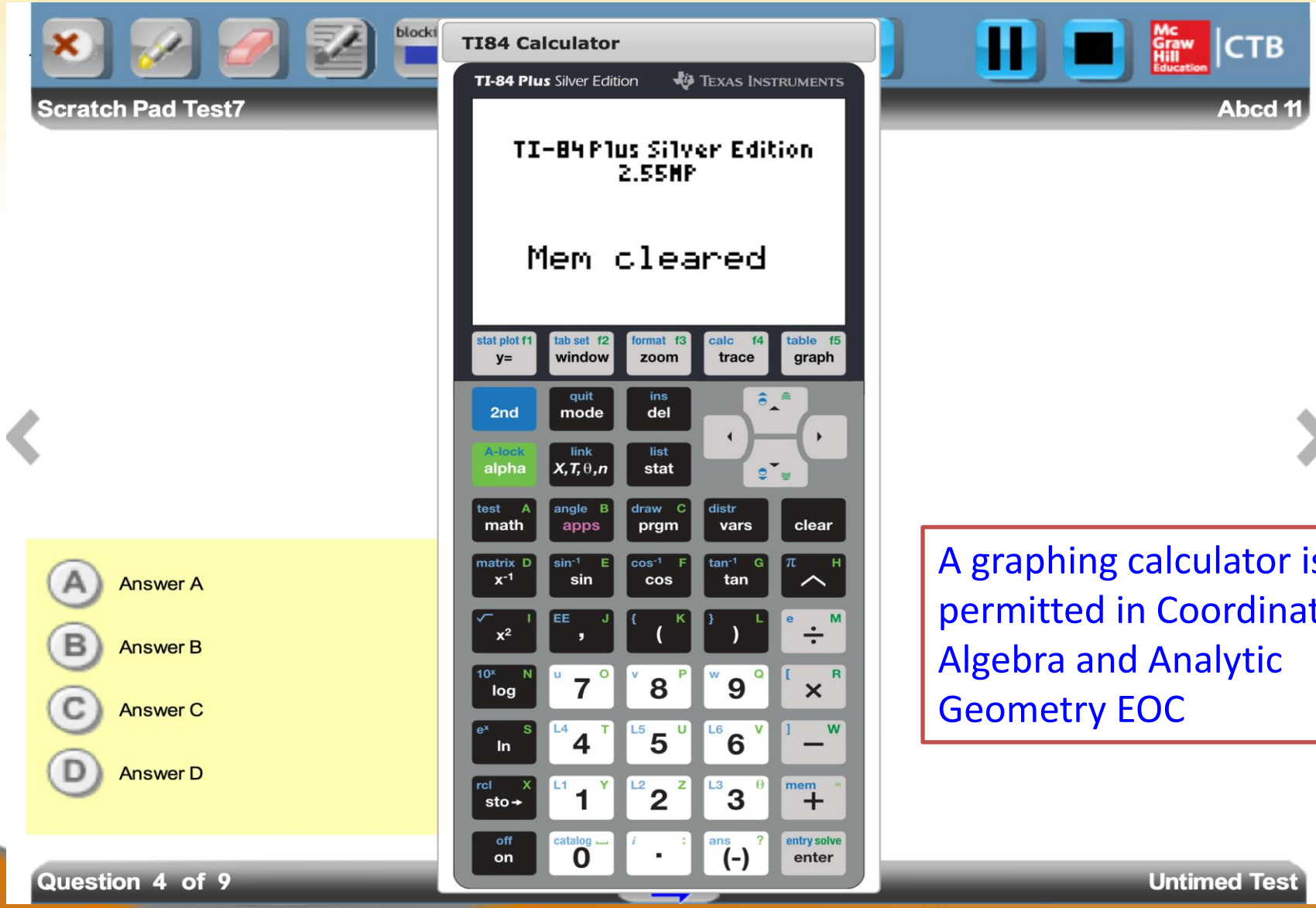


Online Scientific Calculator: TI-30XS MV



A scientific calculator is permitted in Grades 7 and 8 EOG; Physical Science EOC; Economics EOC

Online Graphing Calculator: TI-84



A graphing calculator is permitted in Coordinate Algebra and Analytic Geometry EOC

Mathematics

Grade 5

Extended Response Item

5.G.3

Use what you know about triangles in your explanations in Parts A, B, C, and D.

Part A
Explain whether or not an equilateral triangle can be either acute or obtuse.

Part B
Explain whether or not a scalene triangle can be either acute or obtuse.

Part C
Explain whether or not a right triangle can be either isosceles or scalene.

Part D
An isosceles triangle has one side length of 7 centimeters and another side length of 4 centimeters. What are the two possible perimeters of this triangle? Explain your answer or show your work.

Rubric

Score	Description
4	The student successfully completes all parts of the item by understanding that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category (5.G.3).
3	The student demonstrates clear understanding of the standards listed above by correctly answering all parts of the task, but the explanation or work shown for one part is weak or incomplete Or The student answers all parts with correct explanation or work shown, but makes one minor calculation error or omission Or The student answers three parts correctly with explanation or work shown.
2	The student demonstrates a basic understanding of the standards listed by answering two parts correctly with explanation or work shown Or The student answers three or four parts correctly without explanation or work shown.
1	The student demonstrates minimal understanding of the standards listed by answering one or two parts correctly without explanation or work shown.
0	The response is incorrect or irrelevant to the skill or concept being measured.

Exemplar Response

Part A

An equilateral triangle can only be acute because an acute triangle must have all 3 of its angles less than 90°. All 3 angles of an equilateral triangle are exactly 60°.

Part B

A scalene triangle can be acute because it can have all of its angles less than 90° while each of its sides has a different length. A scalene triangle can be obtuse because it can have only one of its angles greater than 90° while each of its sides has a different length.

Part C

A right triangle can be isosceles because it can have 2 of its sides the same length while only one of its angles is 90°. A right triangle can be scalene because it can have all of its sides different lengths while only one of its angles is 90°.

Part D

15 cm and 18 cm

Since the triangle is isosceles, two sides have the same length. The third side length must be either 7 centimeters or 4 centimeters.

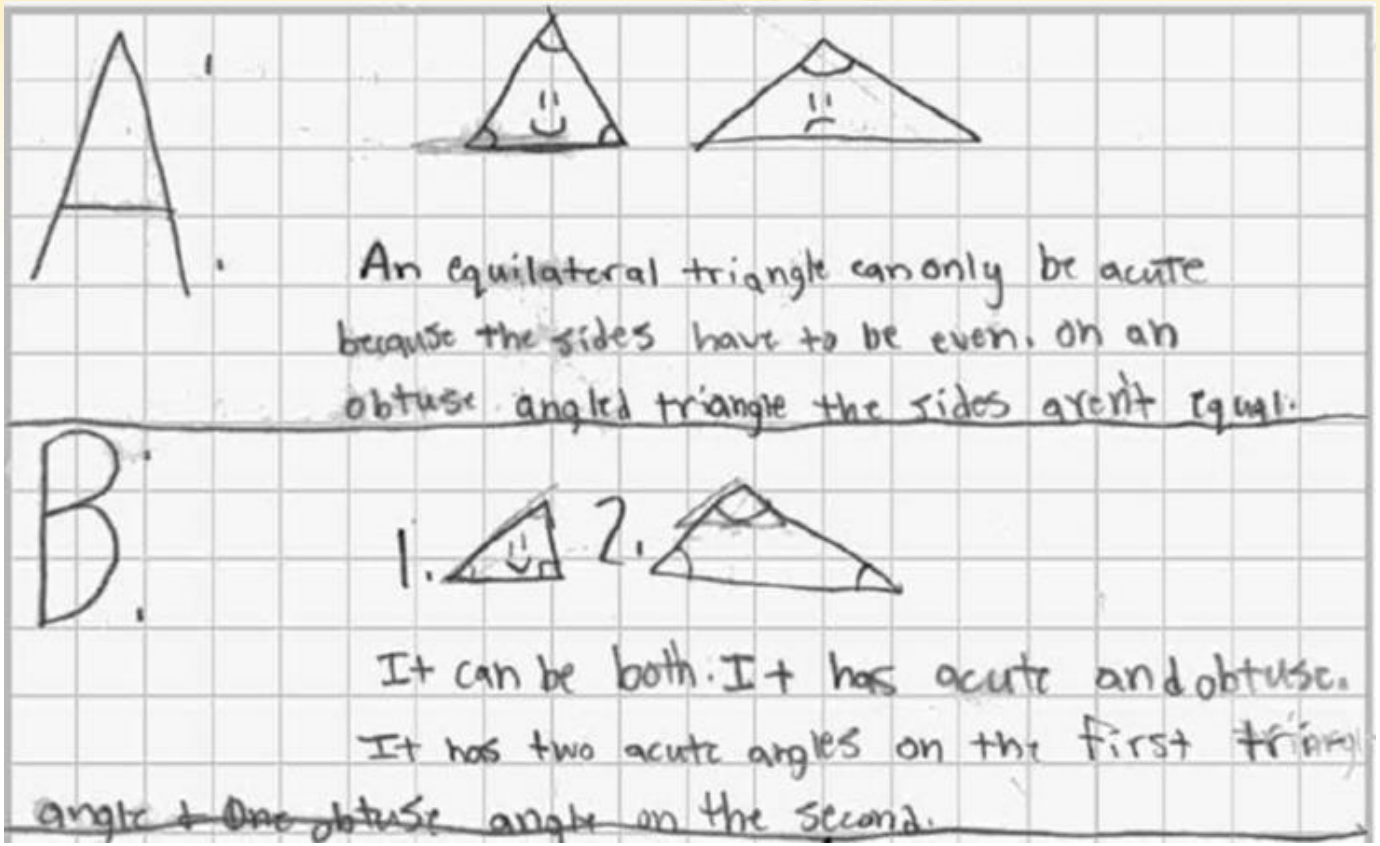
Or

$4 + 4 + 7 = 15$

$7 + 7 + 4 = 18$

Student Response

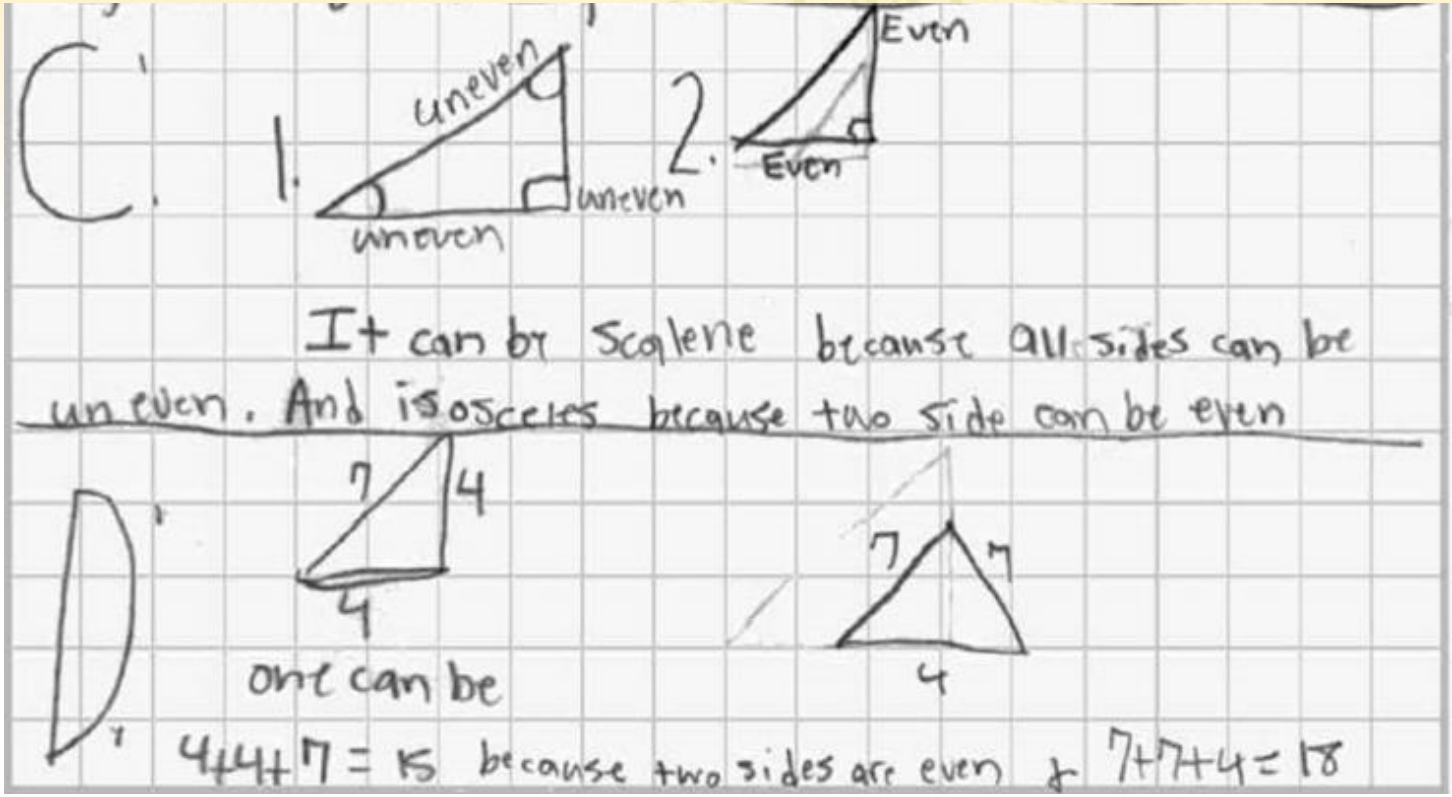
Score 3



Parts A and B are both correct, but the explanations are weak. The student needs to include a discussion of the angles.

Student Response

Score 3



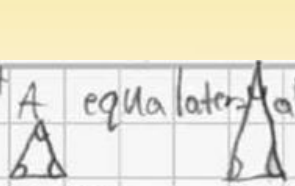
Part C is also correct, but again the explanation is weak. The student needs to include a discussion of the angles.

Part D is correct with explanation.

Student Response

Score 2

Part A



A equalateral triange can only be ~~obtu~~ acute because no matter how you turn it the triangles the ~~corners~~ angles will always be less than 90°.

Part B

A scalene triangle will always be obtuse because no matter which way you turn all the angles will be more than 90°.

Part C

A right triangle will always be scalene because none of it's sides are equal.

Part D

(1 18p) (2 15p) An isosceles triangle has two equal sides and 1 that is not equal so you can either have a peremeter of 18 with two sides seven centimeters and 1 side 4 centimeters, or a peremeter of fifteen ~~and~~ with two sides of 4 centimeters and 1 side of seven.

Part A is correct, with a partially correct explanation.

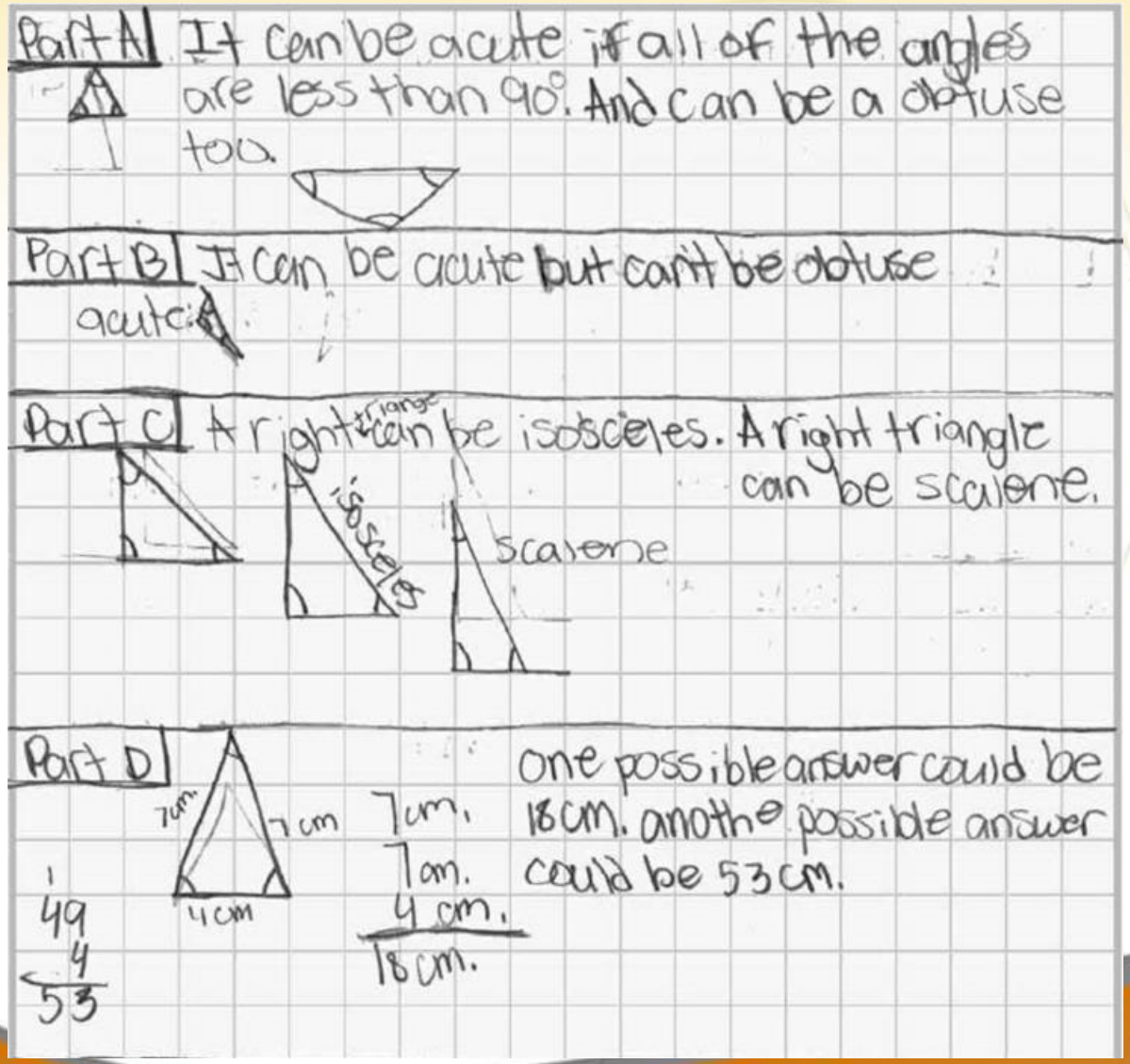
Part B is incorrect. A scalene triangle can also be acute.

Part C is incorrect. A right triangle can also be isosceles.

Part D is correct, with explanation.

Student Response

Score 1



Part A is incorrect. An equilateral triangle cannot be obtuse.

Part B is incorrect. A scalene triangle can be either acute or obtuse.

Part C is correct, but without explanation.

Part D is partially correct (18 cm is correct, but 53 cm is not).

Georgia Milestones

General Test Parameters: Science

Criterion-Referenced

Total Number of Items: 55 / Total Number of Points: 55

Breakdown by Item Type:

- 55 Selected Response (worth 1 point each; approximately 10 of which are aligned NRT)

Norm-Referenced

- Total Number of Items: 20 (approximately 10 of which contribute to CR score)

Embedded Field Test

- Total field test items: 10

Total number of items taken by each student: 75

2013-2014 Student Achievement by Administration Mode: Science

Course	Mode	Total	Mean Scale Score	Performance Level			
				Does Not Meet Expectations	Meets Expectations	Exceeds Expectations	Meets/Exceeds Expectations
Biology	Online	62,320	436.2	21.1%	39.9%	39.0%	78.9%
	Paper/Pencil	68,553	423.5	29.9%	42.5%	27.7%	**70.1%**
	Total	130,873	429.6	25.7%	41.2%	33.1%	74.3%
Physical Science	Online	42,162	458.8	13.9%	30.2%	55.9%	86.1%
	Paper/Pencil	42,640	440.9	19.8%	36.4%	43.8%	**80.2%**
	Total	84,802	449.8	16.9%	33.3%	49.8%	83.1%

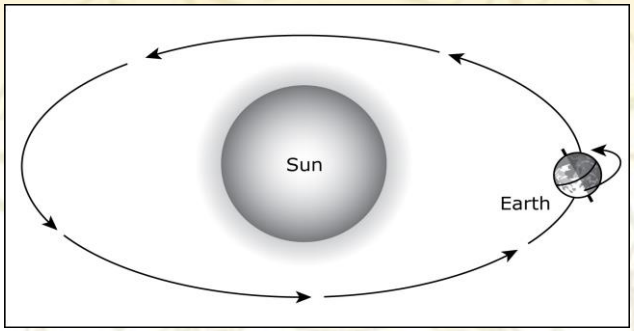
Science

Grade 4

Extended Response Item

S4E2a; S4E2c

Students studied this drawing to understand relationships between the sun and Earth.



Part A
Explain how Earth's rotation on its axis causes the sun to appear to rise and set.

Part B
How is daylight affected at the south pole when Earth's southern axis is tilted away from the sun?

Part C
Explain how the tilt of Earth toward or away from the sun affects the changes of the seasons.

Part D
Describe where the seasonal changes are least noticed on Earth. Explain your answer.

Rubric

Score	Description
4	The student response thoroughly demonstrates understanding of the day/night cycle of Earth **[S4E2.a]** by 1.explaining the day/night cycle of the earth occurs because of the rotation of Earth, **AND** 2.explaining the length of the day depends on the tilt of Earth and that when the southern hemisphere is tilted away from the sun the days will be shorter there, **AND** an understanding of how the revolution of Earth around the sun and its tilt affect seasons on Earth **[S4E2.c]** by 1.explaining that the seasons change because of the tilt of Earth, **AND** 2.explaining that sun is more directly overhead year round at the equator, causing seasonal changes to be less than other places on Earth.
3	The student response clearly demonstrates understanding by correctly answering 3 out of 4 parts of the item or answering 2 parts partially correct and 2 parts correctly.
2	The student response basically demonstrates understanding by correctly answering 2 out of 4 parts of the item or answering 4 parts partially correct.
1	The student response minimally demonstrates understanding by correctly answering 1 out of 4 parts of the item or answering 2 parts partially correct.
0	The student response is missing, irrelevant or incomprehensible.

Exemplar Response

Part A
At any one time, the sun is seen from only half of Earth's surface. As Earth rotates on its axis, Earth is constantly changing the part of its surface that is turned toward the sun. This constant change makes the sun appear to rise and set.

Part B
Days are longest in the summer and shortest in the winter. When Earth's Southern hemisphere is tilted away from the sun, less sunlight falls on it and creates shorter days.

Part C
The seasons change because of the tilt of Earth. The area tilted towards the sun will have summer. The area tilted away will have winter.

Part D
Seasonal changes are least noticed at the equator because the sun is more directly overhead year round at the equator.

Student Response

Score 3

Part A the rotation on earth spins earth one time a day and when it moves the sun is on one side and there is dark on the other side and when it gets on the dark side the sun goes down but on the sun side is rises up

Part B at the south pole when it is tilted a away it gets colder and darker

Part C when the earth is tilted toward the sun the side that is tilted toward the sun gets summer and the side that gets tilted the other way gets winter

Part D if ithe earth is tilted toward the sun summer sould be in the middle of the earth and the other side should in winter sould be in the middle to

Part A is correct.

Part B is correct (*it gets colder* implies it is winter, and *darker* implies there is less sunlight).

Part C is correct.

Part D is correct, but with **no explanation**.

Student Response
Score 2

Part A-The Earth spins around every 24 hours, so one side gets Sun, and when the Earth turns, the Sun looks as if it is rising and setting.

Part A is correct.

Part B-The South Pole has no daylight because it is pointed away from the Sun.

Part B is incorrect. There would be less daylight at the South Pole, but not *no daylight*.

Part C-When the Earth tilts away from the Sun,the Earth has Winter.When it is pointed toward the sun, it has Summer.

Part C is correct.

Part D-Near the Equator because the Earth has zones,The Polar Zone(cold),The Temperate Zone(mild), and The Tropical Zone (hot and near the Equator).The Tropical Zone hardly ever changes, so seasons show the least in The Tropical Zone.

Part D is correct, but with **no explanation**.

Student Response

Score 1

part A

Because it spins around the sun making it look like the sun is spining

Part A is incorrect.

part B

The south pole is tilted to the sun so they get sunlight but the north pole does not

Part B is incorrect. The student has described how daylight is affected when the South Pole is tilted **toward** the sun, not away from the sun.

part C

When we are tilted to the sun we have summer and when we are not we have winter

Part C is correct.

part D

Near the south pole because the sun is not near it

Part D is incorrect.