

ASSET[®]

Placement Examination Study Guide



Georgia technical colleges use ASSET[®] and COMPASS[®] placement tests to determine program readiness. Each program of study has minimum score requirements for entry. Students scoring below this minimum score may be required to take additional core courses to improve skills necessary for program success. Prior to placement testing, all students are encouraged to complete the following ACT[®] study materials. Contact any NGTC campus to register for placement testing or to request study guides (also available online at <http://www.northgatech.edu/admissions/testing.cfm>).

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ASSET STUDENT GUIDE

What Is ASSET?

The ASSET program is a series of short placement tests developed by ACT that lets you and your school work together to help you succeed in your educational program. ASSET helps you identify your strengths as well as the knowledge and skills you will need in order to succeed in specific subject areas. ASSET also helps your school use this information to guide you toward classes that strengthen and build logically upon your current knowledge and skills.

How Does ASSET Work?

ASSET has three tests of basic skills in writing, reading, and numerical reasoning, plus more advanced tests in algebra and geometry. The ASSET program also offers the Educational Planning Form, which supplements your ASSET test scores by providing your institution with information about your educational needs and goals.

How Are ASSET Scores Used?

The ASSET is not used like a traditional test battery. There is generally no “passing score.” Rather, ASSET scores indicate areas in which you are strong and areas in which you may need help. Thus, ASSET can identify problems in major subject areas *before* they disrupt your educational progress, giving you the opportunity to prepare more effectively for needed courses.

You and your institution can use scores from ASSET tests and the information from the Educational Planning Form to prepare a course of study that will be appropriate, relevant, and meaningful for you.

**Many programs of study at NGTC require testing in writing, reading, and numerical skills. Some programs also require testing in elementary algebra. NGTC does not use the intermediate algebra, advanced algebra, or geometry tests described in this study guide.*

What Kinds of Questions Are on the ASSET Tests?

The ASSET tests use a multiple-choice format. The following table gives the number of items and the amount of time allowed for each test.

Test	Number of Items	Minutes
Basic Skills Tests:		
Writing Skills	36	25
Reading Skills	24	25
Numerical Skills	32	25
Advanced Mathematics Tests:		
Elementary Algebra	25	25
Intermediate Algebra*	25	25
College Algebra*	25	25
Geometry *	25	25

** NGTC does not require these three tests.*

The Writing Skills test measures your understanding of appropriate usage in grammar, punctuation, sentence structure, writing strategy, and writing style.

The Reading Skills test measures your ability to find specific information in text and to make logical inferences that extend beyond the text information.

The Numerical Skills test assesses your knowledge and skills in the performance of basic math operations using whole numbers, decimals, and fractions. This test also measures pre-algebra knowledge and skills such as your understanding of prime numbers, absolute values, scientific notation, and square roots.

The Elementary Algebra test measures skills often taught in a first-year high school algebra class, including evaluating and simplifying algebraic expressions, solving linear and quadratic equations, and performing operations with polynomials.

The Intermediate Algebra test* measures skills often taught in a second-year high school algebra class, including factoring, graphing, solving linear inequalities, and calculating slope and distance.

The College Algebra test* measures skills often taught in a first-year college algebra course, including performing operations with complex numbers, exponential functions, factorials, and graphs of polynomials.

The Geometry test* measures skills often taught in a high school geometry class, including understanding formulas and principles related to squares, triangles, circles, and other geometric figures.

Entering students take only the ASSET tests that will be most helpful in determining the courses each student should take. The most frequently administered tests are the three Basic Skills tests: Writing, Reading, and Numerical Skills. Sample items and instructions for the three Basic Skills tests and the four Advanced Mathematics tests are provided on the following pages (answers are provided on the last page).

** NGTC does not require intermediate algebra, college algebra, or geometry tests.*

How Can I Arrange to Take the ASSET?

Most institutions give the ASSET during orientation to incoming freshmen who have already applied and been admitted to the school. Some institutions may require you to take one or more of the ASSET tests before enrolling in a particular program or course. Talk to your advisor, counselor, or Office of Student Services to determine the requirements and recommendations of your institution.

** Please read the front cover for information about NGTC placement test requirements.*

Tips for Taking the ASSET

1. Relax! The ASSET tests are designed to help you succeed in school. Your scores help you and your institution determine which courses are most appropriate for your current level of knowledge and skills. Once you identify your academic strengths and weaknesses, you can get the help you need to improve underdeveloped skills before they interfere with your learning.
2. You will be able to concentrate better on the test if you get plenty of rest and eat properly before the test. You should also arrive a few minutes early so you can find the testing area, bathrooms, etc., and have time to find satisfactory seating, sharpen pencils, and gather your thoughts before the test begins.
3. Be sure you understand the directions for each test before that test session begins. Ask questions if you need to.
4. Pace yourself. You have 25 minutes to answer all questions on each section of the tests. Note the time when you start the test and check the time periodically to keep yourself “on schedule.” Questions usually get increasingly harder, so you need to allow more time for later questions.
5. Answer the easier questions first and skip over the more difficult ones, marking the appropriate item numbers on the answer sheet, so you can come back to them later. You can put a light check mark on the answer sheet next to any item you skip over as long as you erase any stray marks after you have returned to that item and answered it. Do not make any marks in the test booklet.
6. Read each question carefully until you understand what the question is asking. If answering an item requires several steps, be sure you consider them all.
7. Be sure to *answer every item*. You are not penalized for guessing. Your score will provide more useful placement information if you answer every item, even if you guess.
8. If time is available, go back and check your work on the test after you have answered all items. Don’t be afraid to change an answer if you believe that your first choice was wrong.
9. Be sure that you mark the space that corresponds to the answer you have selected for each item. Darken the space completely. If you change your mind about an answer, be sure to erase any stray marks on your answer sheet.
10. If you have a problem or question during the test, raise your hand and the test administrator or proctor will help you. Although they cannot answer test questions for you, they can help you with other types of problems (e.g., a broken pencil).

Tips for Specific ASSET Tests

Writing Skills	Reading Skills
<ol style="list-style-type: none"> 1. Determine the intended meaning of each paragraph before trying to answer items in that paragraph. 2. Substitute each alternative into the appropriate underlined portion for each item and select the one that fits best with the meaning of the paragraph. 	<ol style="list-style-type: none"> 1. Read the entire passage carefully before trying to answer any items. 2. Reread appropriate sections of the passage as needed to answer specific items. 3. Read a few sentences before and after the appropriate sections of a passage to be sure that you understand the context.
Numerical Skills and Advanced Mathematics	
<ol style="list-style-type: none"> 1. Read each item stem carefully and examine all supporting information (e.g., tables and graphics) to be sure you understand each question. 2. Solve each problem <i>before</i> you look at the alternatives. 3. Find your solution among the listed alternatives. 4. If your answer is not among the listed alternatives, check your work. 5. For some items, “Not given” may be the correct alternative. 6. Use the scratch paper provided to do your calculations on the Numerical Skills test. NOTE: Calculators are NOT PERMITTED on the Numerical Skills test. 7. IMPORTANT NOTE: Calculators ARE PERMITTED for the three Advanced Mathematics tests: Elementary Algebra, Intermediate Algebra, and College Algebra. See the “Calculator Guidelines” on the next page to make sure your calculator* is permitted. <p><i>*NGTC test proctors WILL provide a basic calculator upon request.</i></p>	

Calculator Guidelines for ASSET Testing

Calculators may be used on the ASSET Elementary Algebra test provided they meet the requirements listed below. (NOTE: Calculators are NOT allowed on the ASSET Numerical Skills Test.)

To ensure fairness for all test takers, to avoid disturbances in the testing room, and to protect the security of the testing materials and process, the following types of calculators are **NOT** permitted:

- Pocket organizers
- Handheld or laptop computers
- Electronic writing pads or pen-input devices
- Models with a QWERTY (typewriter) keypad (although calculators with letters on the keys are permitted as long as the keys are not arranged in QWERTY format)
- Models with built-in capability to simplify algebraic expressions, multiply polynomials, or factor polynomials (often called Computer Algebra Systems), for example, CFX-9970G, TI-89, and TI-92

The following types of calculators are permitted only if they are used as noted:

- Models with paper tapes: The paper must be removed.
- Models that make noise: The sound feature must be turned off.
- Models that can communicate (transfer data or information wirelessly with other calculators): The wireless transfer capability must be disabled by placing opaque material (such as masking tape) over the infrared data port.
- Models that have a power cord: No power cords are permitted. The electrical cord must be removed.

NOTE: ACT monitors new calculators as they become available. For the latest list of prohibited calculators, students and institutions are invited to check ACT's Web site (www.act.org) or call toll free 800/498-6481 for a recorded message.

If students plan to use a calculator, they are responsible for bringing an acceptable one to the testing session. Sharing calculators during the test is **not** permitted, and the test proctor will **not** provide a calculator.

**NGTC test proctors WILL provide a basic calculator upon request.*

Students are also responsible for ensuring that their calculator works properly. If their calculator uses batteries, students must make certain that the batteries are strong enough to last throughout the testing session. Students may bring a spare calculator and extra batteries with them.

Sample Writing Skills Test

Directions: In the passage that follows, certain words and phrases are underlined and numbered. In the right-hand column, you will find alternatives for each underlined part. You are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is best, choose “NO CHANGE.” You will also find questions about a section of the passage, or about the passage as a whole. For each question in the test, choose the alternative you consider best and fill in the corresponding space on your answer sheet. Read each passage through once before you begin to answer the questions that accompany it. You cannot determine some answers without reading several sentences beyond the phrase in question. Be sure that you have read far enough ahead each time you choose an alternative.

The following paragraphs may or may not be in the most logical order. Each paragraph is numbered in brackets, and item 11 will ask you to choose the sequence of paragraph numbers that is in the most logical order.

[1]

In the end, everyone gives up jogging. Some find that their strenuous efforts to earn a living drains away the energy necessary for

1

1. A. NO CHANGE
B. drain
C. has drained
D. is draining

running. Others suffering from

2

2. A. NO CHANGE
B. suffered
C. suffer
D. suffering with

defeat by the hazards of the course, which can range from hard pavement to muddy tracks and from smog to sleet and snow. Person's can also simply

3

3. A. NO CHANGE
B. Still others
C. One may also
D. It's also possible to

collapse in their sneakers. My experience having been different,

4

however, I had a revelation.

4. A. NO CHANGE
B. being different,
C. was a difference,
D. was different,

[2]

It happened two summers ago up at Lake Tom, where I was vacationing with friends. I had been accustomed to running fairly regularly, but that whole week I decided to be lazy. I sailed, basked in the sun, and ate wonderful: lobster, steak,

5

5. A. NO CHANGE
B. ate wonderfully:
C. eating wonderful:
D. eat wonderful:

corn on the cob, baked potatoes, and ice cream. By the fourth day of this routine I had to face the truth which

6

6. A. NO CHANGE
B. truth about
C. truth:
D. truth, which

my body was slowly changing to dough.

[3]

So, filled with worthy ambition, I tied on my favorite pair of running shoes and loped out to the main road in search of a five-mile route. Out of curiosity, I turned onto Lookout Hill Road and soon discovered how the

7

7. A. NO CHANGE
B. Out of curiosity, Lookout Hill Road was turned onto
C. Having become curious, Lookout Hill Road was the road I turned onto
D. Lookout Hill Road, having become curious, was the route I turned onto

road had come by its name. I was chugging, at a painfully slow rate, up one of the longest, steepest

8

inclines in the region. Perched at the faraway top of the hill was a solitary house, and only a desire to get a closer look at the place kept me going.

[4]

I was exhausted when, gasping and bedraggled, I reached the crest of the hill. There I found a native New Englander rocking tranquilly on the front porch of the house, which was painted. “Mister,” I panted, “you sure

9

live on a big hill!”

[5]

He studied me closely for a moment and then responded, “Yep, and I’ve got the good sense not to run up it.” That night I tied the laces of my running shoes around a rock and

10

pitched them into Lake Tom.

8. A. NO CHANGE
B. longest, steepest,
C. steepest longest,
D. longest and steepest,

9. A. NO CHANGE
B. house (painted).
C. house, and it was painted.
D. house.

10. A. NO CHANGE
B. laces, of my running
C. laces of my running,
D. laces; of my running

Items 11 and 12 pose questions about the essay as a whole.

11. Choose the sequence of paragraph numbers that will make the essay’s structure most logical.
11. A. NO CHANGE
B. 1, 4, 5, 2, 3
C. 1, 5, 4, 3, 2
D. 4, 5, 1, 2, 3
12. Is the use of direct quotation in the essay appropriate?
12. A. No, because the essay is an explanation of why the writer gave up jogging.
B. No, because more physical detail would be better in a descriptive essay.
C. Yes, because the story is enlivened by dialogue.
D. Yes, because the essay persuades readers to talk about running.

Sample Reading Skills Test

DIRECTIONS: The passage below is followed by 8 questions. After reading the passage, choose the best answer to each question and fill in the corresponding space on your answer sheet. You may look back at the passage as often as you wish.

The Industrial Revolution got under way first in England. This is a historical fact of the utmost significance, for it explains in large part England's primary role in world affairs in the nineteenth century. Consequently, the question of why the Industrial Revolution began where it did is of much more than academic interest.

The problem may be simplified by eliminating those countries that could not, for one reason or another, have generated the Industrial Revolution. Italy at one time had been an economic leader but had dropped behind with the Discoveries and the shift of the main trade routes from the Mediterranean to the Atlantic. Spain had been economically predominant in the sixteenth century but had then lost out to the northwestern states for various reasons already noted. Holland had enjoyed her Golden Age in the seventeenth century, but she lacked the raw materials, labor resources, and water power necessary for machine production. The various countries of Central and Eastern Europe had been little affected by the Commercial Revolution and hence did not develop the technical skills, the trade markets, and the capital reserves needed for industrialization.

This leaves only France and Britain as possible leaders, and of the two, England had certain advantages that enabled her to forge far ahead of her rival. In commerce, for example, the two countries were about equal in 1763, or, if anything, France was somewhat in the lead. But France had a population three times that of England. France also lost ground in foreign trade

when she was driven out of Canada and India in 1763. Furthermore, the blockade of the British fleet during the Revolutionary and Napoleonic Wars reduced French commerce to about half its 1788 value, and the loss was not restored until 1825.

Another important advantage enjoyed by Britain is that she had taken an early lead in the basic coal and iron industries. Because the forest reserves were being depleted, Britain early began using coal for fuel and for smelting iron. By the time of the French Revolution in 1789, Britain was producing about 10 million tons of coal per year, while France was producing 700,000 tons. A contemporary poet sensed the significance of this unlimited source of power for English industry when he wrote,

England's a perfect World! has Indies too!
Correct your Maps! New-castle is Peru.

England also pioneered in the development of the blast furnace which, in contrast to the old forges, could mass-produce iron. In 1780 Britain's iron output had been a third that of France; by 1840, it was three times more. All this meant that Britain was pushing ahead in the production of goods of mass consumption for which there was a large and steady demand, whereas France specialized more in luxury commodities of limited and fluctuating demand. Perhaps Voltaire had this in mind when he wrote in 1735, "In truth we are the whipped cream of Europe"

From L. S. Stavrianos, *The World Since 1500: A Global History*.

1. The word *forge*, as it is used in the third paragraph, means:
 - A. make use of the blast furnace.
 - B. alter in order to deceive.
 - C. move forward steadily.
 - D. produce wrought iron.

2. In comparing the economic development of England and France, the passage shows that:
 - A. England and France were essentially equals until the middle of the nineteenth century.
 - B. France modeled itself on the examples of Italy and Spain, while England modeled itself on the example of Holland.
 - C. England gained most of its capital reserves from the spoils of war, while France gained its capital reserves from trade.
 - D. England began on an equal base with France in the middle of the eighteenth century, but pulled far ahead by the middle of the nineteenth century.

3. What reason does the author give for discussing several countries besides England and France?
 - A. Enriching the information provided in the passage
 - B. Balancing the passage in the interest of fairness
 - C. Simplifying the problem confronted in the passage
 - D. Eliminating countries whose Golden Age was yet to come

4. The passage suggests that generating the first Industrial Revolution required which of the following which of the following?
 - I. Raw materials
 - II. Technical skills
 - III. A large population
 - A. I only
 - B. III only
 - C. I and II only
 - D. II and III only

5. The author asserts that England's primary role in world affairs in the nineteenth century can be explained in large part by:
 - A. The Industrial Revolution getting under way in England first.
 - B. England's overwhelming naval power.
 - C. The decline of Italy, Spain, Holland, and Central and Eastern Europe.
 - D. England's unlimited source of power to fuel its industry

6. The passage suggests that one indication of a country's success in industrializing was:
 - A. an educational system that could produce a steady supply of skilled workers.
 - B. an ability to satisfy a large market for necessary, rather than luxury, goods.
 - C. a forest reserve that could be rapidly and efficiently replenished.
 - D. a fluctuating demand for luxury, rather than necessary, goods.

7. According to the passage, France was compared to whipped cream by:
- A. an unnamed contemporary poet.
 - B. Voltaire.
 - C. Napoleon.
 - D. L. S. Stavrianos.
8. The main idea of the passage is that:
- A. certain conditions gave England an advantage over other countries in industrializing.
 - B. with its conquest of Canada in 1763, England controlled the raw materials necessary for industrialization.
 - C. the English preferred quantity in their goods, while the French demanded quality.
 - D. England's primary position in international affairs gave it the wealth and influence necessary for industrialization.

Sample Numerical Skills Test

Directions: Solve each problem, choose the correct answer, and then fill in the corresponding space on your answer sheet. For some questions, the fifth choice for an answer will be “Not given.” Whenever none of the first 4 possible answers is correct, choose “Not given” as your answer.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left.

- $0.05 + 0.30 = ?$
 - 0.08
 - 0.305
 - 0.35
 - 0.38
 - Not given
- $0.35 \div 5 = ?$
 - 0.07
 - 0.70
 - 1.75
 - 7.00
 - Not given
- On a road map with a scale of $\frac{1}{4}$ inch per 10 miles, the highway from Waukee to Winterset is $1\frac{3}{8}$ inches long. How many miles long is this highway?
 - 44
 - 55
 - 65
 - 70
 - 90
- The price of gasoline has increased by 5% during the past month. If the price per gallon a month ago was \$1.20, what is the current price per gallon?
 - \$1.24
 - \$1.25
 - \$1.26
 - \$1.70
 - \$1.80
- $-2 | 3 - 4 - 5 | = ?$
 - 12
 - 8
 - 8
 - 12
 - 24
- Which of the following fractions is equivalent to 0.05?
 - $\frac{1}{5}$
 - $\frac{1}{20}$
 - $\frac{1}{25}$
 - $\frac{1}{50}$
 - $\frac{1}{200}$

Sample Elementary Algebra Test

Directions: Solve each problem, choose the correct answer, and then darken the corresponding space on your answer sheet. For some questions, the fifth choice for an answer will be “Not given.” Whenever none of the first 4 possible answers is correct, choose “Not given” as your answer.

Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left.

1. If $5 \times 10^n = 0.005$, then $n = ?$

- A. -5
- B. -3
- C. -2
- D. 2
- E. 3

2. If $x = -3$, then $x^2 - 2x + 1 = ?$

- A. 16
- B. 4
- C. 1
- D. -11
- E. -14

3. Which of the following gives $6a^2b^3 - 3a^2b$ in factored form?

- A. $3a^2b(2b^2)$
- B. $3a^2(2b^2 - 1)$
- C. $3ab(2ab^2 - 1)$
- D. $3a^2b(2b^2 - 1)$
- E. $a^2b(6b^2 - 1)$

4. For all $x \neq 0$ and $y \neq 0$, $\frac{(3x^{-2}y^3)^2}{xy} = ?$

- A. $9x^3y^8$
- B. $\frac{9y^4}{x}$
- C. $\frac{9y^4}{x^2}$
- D. $\frac{9y^5}{x^5}$
- E. $\frac{9y^7}{x^5}$

Sample Intermediate Algebra Test (Not Required by NGTC)

Directions: Solve each problem, choose the correct answer, and then fill in the corresponding space on your answer sheet. Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left.

1. What are all the real values of x that are solutions for the inequality $|x - 2| \leq 6$?

- A. $-8 \leq x \leq -4$
- B. $-8 \leq x \leq 4$
- C. $-8 \leq x \leq 8$
- D. $-4 \leq x \leq 4$
- E. $-4 \leq x \leq 8$

2. If $3x - 2 = 2y$ and $y = 3z + 5$, which of the following is equal to x ?

- A. $z + 2$
- B. $z + \frac{7}{3}$
- C. $z + 5$
- D. $2z + 4$
- E. $3z + 7$

3. What is the distance between the points with (x,y) coordinates $(3,-2)$ and $(-3,-1)$?

- A. $\sqrt{7}$
- B. $\sqrt{37}$
- C. $\sqrt{11}$
- D. 3
- E. 7

Sample College Algebra Test *(Not Required by NGTC)*

Directions: Solve each problem, choose the correct answer, and then fill in the corresponding space on your answer sheet. Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left.

1. $\log 8 + \log 2 = ?$

- A. $\log 4$
- B. $\log 10$
- C. $\log 16$
- D. $\log 64$
- E. $\log 256$

2. If $f(x) = x^2 - 2$, then $f(a + 2) = ?$

- A. $a^2 + 4a + 4$
- B. $a^2 + 4a + 2$
- C. $a^2 + 4a$
- D. $a^2 + 2$
- E. a^2

3. For $0^\circ < x < 90^\circ$, how many solutions are there for the equation $2 \sin x = \cos x$?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

Sample Geometry Test (Not Required by NGTC)

Directions: Solve each problem, choose the correct answer, and then fill in the corresponding space on your answer sheet. Do not linger over problems that take too much time. Solve as many as you can; then return to the others in the time you have left.

1. If the diameter of a circle is 6 units long, what is the area of the circle, in square units?
 - A. 36π
 - B. 24π
 - C. 12π
 - D. 9π
 - E. 3π

2. In $\triangle ABC$, the lengths of \overline{AB} and \overline{BC} each equal 13 centimeters. If the perimeter of $\triangle ABC$ is 36 centimeters, what is the area, in square centimeters, of $\triangle ABC$?
 - A. 10
 - B. 30
 - C. 60
 - D. 62
 - E. 65

3. How many tiles are needed to tile the floor of a closet measuring 6 feet by 4 feet if each tile is a square with sides 8 inches long?
 - A. 18
 - B. 24
 - C. 30
 - D. 54
 - E. 192

Answers to Sample Items

Writing Skills Answer Key

- | | | |
|------|------|-------|
| 1. B | 5. B | 9. D |
| 2. C | 6. C | 10. A |
| 3. B | 7. A | 11. A |
| 4. D | 8. A | 12. C |

Reading Skills Answer Key

- | | |
|------|------|
| 1. C | 5. A |
| 2. D | 6. B |
| 3. C | 7. B |
| 4. C | 8. A |

Numerical Skills Answer Key

- | | |
|------|------|
| 1. C | 4. C |
| 2. A | 5. A |
| 3. B | 6. B |

Elementary Algebra Answer Key

- | | |
|------|------|
| 1. B | 4. D |
| 2. A | |
| 3. D | |

Intermediate Algebra* Answer Key

1. E
2. D
3. B

College Algebra* Answer Key

1. C
2. B
3. B

Geometry* Answer Key

1. D
2. C
3. D

**These three sections are not required by NGTC.*

ACT endorses the *Code of Fair Testing Practices in Education*, a statement of the obligations to test takers of those who develop, administer, or use educational tests and data. The *Code* sets forth criteria for fairness in four areas: developing and selecting appropriate tests, interpreting test scores, striving for fairness, and informing test takers. ACT is committed to ensuring that each of its testing programs upholds the *Code's* standards as they apply to test developers.

A copy of the full *Code* may be obtained free of charge from ACT Publications, P.O. Box 168, Iowa City, Iowa 52243, (319) 337-1429.



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