

RANKEN

TECHNICAL COLLEGE

Placement Tests STUDY GUIDE

COMPASS*[®] / *ESL

Sample Test Questions for Reading, Writing, and Math

For information regarding placement testing or to make an appointment, call the Admissions Office: 314.286.4809.

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COMPASS[®]/ESL



An ACT Program for Educational Planning

Note to Students

You are about to look at some sample test questions as you prepare to take the actual COMPASS test. The examples in this booklet are similar to the kinds of test questions you are likely to see when you take the actual COMPASS test. Since this is a practice exercise, you will answer just a few questions and you won't receive a real test score. The answer key follows the sample questions.

Once you are ready to take the actual COMPASS test, you need to know that the test is computer delivered and *untimed*— that is, you may work at your own pace. After you complete the test, you can get a score report to help you make good choices when you register for college classes.

We hope you benefit from these sample questions, and we wish you success as you pursue your education and career goals!

Note to Parents

The test questions in this sample set are similar to the kinds of test questions your son or daughter will encounter when they take the actual COMPASS test. Since these questions are only for practice, they do not produce a test score; students answer more questions on the actual test. The aim of this booklet is to give a sense of the kinds of questions examinees will face and their level of difficulty. There is an answer key at the end.

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Introduction

This helpful guide was created to prepare you in advance for the placement tests. Remember, taking the placement tests helps Ranken determine the best place for you to start your college courses.

The three placement tests are:

- COMPASS Reading Test
- COMPASS Writing Essay Test (e-Write)
- COMPASS Mathematics (Numerical Skills/Prealgebra) Test

In addition to this guide, more test-taking tips and information about the COMPASS tests can be found on ACT's website at www.act.org/compass/sample.

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Frequently Asked Questions (FAQs)

What is the purpose of the tests?

Your scores will help us determine your readiness for your technical major and place you into the correct College math and English classes.

Does it cost to take the tests?

Ranken Technical College does not charge for testing if the prospective student is planning to attend Ranken.

How many tests are there?

There are three tests: reading, writing, and mathematics.

Do I have to take all three tests?

No, your admissions counselor will explain which tests you need to take. We also accept ACT scores and evaluate prior college transcripts. Some technical majors also only require certain tests. You do not have to take all three tests on one day; instead, you may take them separately on different days.

How long does it take to take the tests?

The tests are not timed, but on the average, it takes about a half hour per test. Be sure to arrive on campus with plenty of time to take the tests before the testing facility closes.

When can I take the tests?

Monday - Thursday: 8:00 a.m. until 6:00 p.m.

Friday: 8:00 a.m. until 3:00 p.m.

Saturday: 8:00 a.m. until noon.

When will I know my scores?

Immediately. You will return to the Admissions Office, and a counselor will go over your test score(s) with you.

Where do I take the tests?

First, start in the Admissions Office. They will direct you to the test taking area. Also, off-site testing is available. Check with an admissions counselor for information.

How many times may I take the tests?

In a calendar year, you may take the Compass Reading Test and the Compass Mathematics tests twice. It is recommended that you study before *retaking* a math or reading test. In order to retake the Compass eWrite Test, however, you will need to consult with an admissions counselor.

What happens if I take a test twice, and I still have a low score?

Your admissions counselor will review your options with you.

COMPASS[®]/ESL Reading Placement Test

The reading comprehension items are of two general categories: referring and reasoning. Within each of these two general categories are several content categories that further specify the skills and knowledge assessed by each item. Referring items pose questions about material explicitly stated in a passage. Reasoning items assess proficiency at making appropriate inferences, developing a critical understanding of the text, and determining the specific meanings of difficult, unfamiliar, or ambiguous words based on the surrounding context.

Samples of items in the primary content categories of the COMPASS Reading Placement Test are provided on the following pages.



Sample Passage 1

What Methods Do Andean Farmers Use?

Public debate around climate change and its effects on agriculture tends to focus on the large-scale industrial farms of the North. Farmers who work on a small scale and use traditional methods have largely been ignored. However, as the world slowly comes to terms with the threat of climate change, Native farming traditions will warrant greater attention.

In the industrial model of agriculture, one or two crop varieties are grown over vast areas. Instead of trying to use local resources of soil and water optimally and sustainably, the natural environment is all but ignored and uniform growing conditions are fabricated through large-scale irrigation and the intensive use of artificial fertilizers and pesticides. For example, a handful of basically similar potato varieties, all of which require nearly identical soil conditions, temperature, rainfall, and growing seasons, account for almost all global production. When these global crops are no longer suited to the environment in which they are grown, when their resistance to disease and pests begins to fail, or the climate itself changes, the best way to rejuvenate the breeding stock will be to introduce new genetic material from the vast diversity of crop varieties still maintained by indigenous peoples.

In contrast to the industrial model, Andean potatoes and other Andean crops such as squash and beans grown by Quechuan farmers exhibit extraordinary genetic diversity, driven by the need to adapt crops to the extraordinary climatic diversity of the region. Along the two axes of latitude and altitude, the Andes encompasses fully two-thirds of all possible combinations of climate and geography found on Earth. The Andean potato has been adapted to every environment except the depth of the rainforest or the frozen peaks of the mountains. Today, facing the likelihood of major disruptions to the climatic conditions for agriculture worldwide, indigenous farmers provide a dramatic example of crop adaptation in an increasingly extreme environment. More importantly, Native farmers have also safeguarded the crop diversity essential for the future adaptations.

Adapted from Craig Benjamin, "The Machu Picchu Model: Climate Change and Agricultural Diversity."
© 1999 by Craig Benjamin.

1. What is the main idea of the first paragraph?
 - A. Attention to Native farming practices will lead to greater awareness of the threat of climate change.
 - B. Popularity of small-scale farming in the North will lead to greater attention to Native farming practices.
 - C. Global demand for food will lead to increasing efficiency of large-scale farming in the North.
 - D. It will be worthwhile to include a greater focus on Native farming practices in public discussions concerning the threat of climate change.
 - E. Despite potential climate change, public debate will have little effect on industrial farming practices.

2. In the second paragraph, the information about potato-growing practices in the industrial model of agriculture serves to:
 - A. give an example of a potential problem that Native farming practices could help to alleviate.
 - B. show the likely global consequences of a possible food shortage caused by industrial farming practices.
 - C. show how pests and disease are less effectively resisted by crops grown in the industrial farming model.
 - D. give an example of how public debate has had little effect on the agricultural practices of the North.
 - E. give an example of how Native farming practices and industrial farming practices derive from different climatic conditions.

3. The passage states that which of the following is true of the small number of potato varieties that account for most of the potatoes produced on Earth currently?
 - A. They are grown in the Andean region.
 - B. They all require very similar soil and climate conditions.
 - C. They are no longer suited to their environment.
 - D. They are based on genetic material from crops developed by indigenous peoples.
 - E. They make optimal use of available soil and water resources.

4. As it is used in the passage, the underlined word *fabricated* most nearly means:
 - A. woven.
 - B. falsely stated.
 - C. fully clothed.
 - D. manufactured.
 - E. unwrapped.

Sample Passage 2

Fortune Tellers

A young couple entered the restaurant in Andy's view. They were holding hands. Andy sat back down in his chair. He felt sick. He turned and faced his father, who was eating *xôi*.

"What's the matter, son?" asked his father. "I thought you were going to the birthday party."

"It's too late."

"Are you sure?"

Andy nodded. He looked at the plate of *xôi*. He wanted to bury his face in it.

"Hi, Andy." A voice came from behind.

Andy looked up. He recognized the beautiful face, and he refused to meet her eyes. "Hi, Jennifer," muttered Andy, looking at the floor.

"You didn't miss much, Andy. The party was dead. I was looking for you, hoping you could give me a ride home. Then I met Tim, and he was bored like me. And he said he'd take me home.... Andy, do you want to eat with us? I'll introduce you to Tim."

Andy said, "No, I'm eating *xôi* with my father."

"Well, I'll see you in school then, okay?"

"Yeah." And Andy watched her socks move away from his view.

Andy grabbed a chunk of *xôi*. The rice and beans stuck to his fingernails. He placed the chunk in his mouth and pulled it away from his fingers with his teeth. There was a dry bitter taste. But nothing could be as bitter as he was, so he chewed some more. The bitterness faded as the *xôi* became softer in his mouth, but it was still tasteless. He could hear the young couple talk and giggle. Their words and laughter and the sounds of his own chewing mixed into a sticky mess. The words were bitter and the laughter was tasteless, and once he began to understand this, he tasted the sweetness of *xôi*. Andy enjoyed swallowing the sticky mess down. Andy swallowed everything down—sweetness and bitterness and nothingness and what he thought was love.

Adapted from Nguyen Duc Minh, "Fortune Tellers" in the collection *American Eyes*. ©1994 by H. Holt

1. Who is telling this story?
 - A. Jennifer
 - B. Andy
 - C. Tim
 - D. Andy's father
 - E. An unnamed narrator

2. What is the most reasonable conclusion to make from the statement in the first paragraph, "He felt sick."?
 - A. Eating *xoi* with his father gave Andy a stomachache.
 - B. Andy was upset when he saw Jennifer holding hands with Tim.
 - C. Andy was unhappy about the restaurant his father had selected.
 - D. Andy was upset with Jennifer for making him miss the party.
 - E. Andy mistakenly thought that Tim was his best friend.

3. According to the passage, Tim would most likely describe the party as:
 - A. mysterious.
 - B. lively.
 - C. dull.
 - D. upsetting.
 - E. remarkable.

4. Based on the last paragraph, it can be most reasonably inferred that Andy's increasing enjoyment of eating *xoi* was related to:
 - A. hearing Tim and Jennifer laughing and talking.
 - B. the fact that it stuck to his fingernails.
 - C. sitting at a table with Tim and Jennifer while he ate.
 - D. the fact that his father made the *xoi*.
 - E. seeing Tim and Jennifer eating *xoi*.

5. This passage is mainly about the relationship between:
 - A. Andy and his father.
 - B. Andy and Tim.
 - C. Andy's father and Tim.
 - D. Jennifer and Tim.
 - E. Jennifer and Andy.

Sample Passage 3**In the 1930s, why did author Zora Neale Hurston choose Eatonville, Florida, to be the first source for her collection of folklore?**

I was glad when somebody told me, "You may go and collect Negro folklore." In a way, it would not be a new experience for me. When I pitched headforemost into the world I landed in the crib of Negroism. It was fitting me like a tight chemise. I couldn't see it for wearing it. It was only when I was off in college, away from my native surroundings, that I could stand off and look at my garment. Then I had to have the spy-glass of anthropology to look through.

I was asked where I wanted to work and I said, "Florida. It's a place that draws people—Negroes from every Southern state and some from the North and West." So I knew that it was possible for me to get a cross section of the Negro South in one state. And then I realized that I felt new myself, so it looked sensible for me to choose familiar ground.

I started in Eatonville, Florida, because I knew that the town was full of material and that I could get it without causing any hurt or harm. As early as I could remember, it was the habit of the men particularly to gather on the store porch in the evenings and swap stories. Even the women would stop and break a breath with them at times. As a child when I was sent down to the store, I'd drag out my leaving to hear more.

Folklore is not as easy to collect as it sounds. The ideal source is where there are the fewest outside influences, but these people are reluctant at times to reveal that which the soul lives by. I knew that even / would have some hindrance among strangers. But here in Eatonville I knew everybody was going to help me.

Adapted from Zora Neale Hurston, *Mules and Men*. ©1935 by J.B. Lippincott Company.

1. Which of the following does the author use as a metaphor for the culture in which she was born?
 - A. College
 - B. Garment
 - C. Southern state
 - D. Spy-glass
 - E. Story

2. Based on the first paragraph, it is most reasonable to conclude that while in college the author:
 - A. decided to become a professor of anthropology.
 - B. decided that she did not want to live permanently in Eatonville, Florida.
 - C. felt that her teachers prevented her from studying what she wanted.
 - D. became disenchanted with anthropology.
 - E. understood her own culture in new and different ways.

3. As it is used in the passage, the highlighted word *material* most nearly means:
 - A. diversity.
 - B. fabric.
 - C. information.
 - D. money.
 - E. energy.

4. In the second paragraph, the author indicates that one reason she chose to work in Florida was that she wanted to collect folklore:
 - A. from people of different geographical backgrounds.
 - B. where her teachers suggested she do so.
 - C. from a place she had never visited.
 - D. in a state far from where she grew up.
 - E. in a state with a large urban population.

5. In the first paragraph, the author's claim, "In a way, it would not be a new experience for me," refers to the fact that:
 - A. she had already attended college in Florida.
 - B. she had already collected folklore in Florida for a college course.
 - C. she had already experienced new cultures by leaving home.
 - D. she was already familiar with the folklore she was to collect.
 - E. she had already received permission to conduct the study.

6. Based on information in the third paragraph, which of the following statements about the interactions on the porch can be most reasonably inferred?
- A. The adults encouraged the author (as a child) to stay and tell stories.
 - B. Men were more frequent participants than were women.
 - C. Most of the storytellers had not grown up in Eatonville.
 - D. The author's parents sent her to the porch to hear the stories.
 - E. One man in particular told most of the stories.
7. In the last paragraph, the author writes that folklore collecting:
- A. is less difficult than it appears.
 - B. is easiest to accomplish in isolated places because people there freely reveal their innermost thoughts.
 - C. can be difficult in isolated places, even though the people there are the best sources.
 - D. is more difficult than publishing what has been collected.
 - E. is the best way to reveal what is important to people.
8. Which of the following is NOT among the reasons the author gives for her decision to collect folklore in Eatonville?
- A. The people of Eatonville would be grateful that she published their stories.
 - B. The people of Eatonville would have many stories for her collection.
 - C. Eatonville and its people are familiar to her.
 - D. She believes that she can collect stories without doing harm.
 - E. She believes that the people of Eatonville will help her in her project.

Answer Key for Sample Reading Items

Sample Passage 1 Andean Farming *Natural Science*

Question #	Correct Answer	Content Category
1	D	Recognizing the main idea of a paragraph
2	A	Showing how details are related to the main idea
3	B	Recognizing significant details
4	D	Vocabulary

Sample Passage 2 Fortune Tellers *Fiction*

Question #	Correct Answer	Content Category
1	E	Recognizing several points of view
2	B	Drawing conclusions from facts given
3	C	Recognizing significant details
4	A	Inferring cause-effect relationships
5	E	Inferring the main idea of a passage with more than one paragraph

Sample Passage 3 Zora Hurston *Humanities*

Question #	Correct Answer	Content Category
1	B	Recognizing significant details
2	E	Drawing conclusions from facts given
3	C	Vocabulary
4	A	Drawing conclusions from facts given
5	D	Drawing conclusions from facts given
6	B	Drawing conclusions from facts given
7	C	Recognizing significant details
8	A	Recognizing significant details

COMPASS®/ESL Writing Essay Test (e-Write)

You'll be given a writing task (prompt) framed within a familiar context. This might be a community or school setting where a problem or issue related to that setting is presented. The prompt requires that you take a position and offer a solution supported with specific examples or evidence regarding the position taken. You should adopt one or the other of the points of view or solutions described in the writing prompt. Your score will not be affected by the point of view you take on the issue.

A sample writing prompt, as well as tips for the Writing Essay (e-Write) Placement Test, are provided on the following pages.



Sample COMPASS e-Write Prompt

A School Board is concerned that the state's requirements for core courses in mathematics, English, science, and social studies may prevent students from taking important elective courses like music, other languages, and vocational education. The School Board would like to encourage more high school students to take elective courses and is considering two proposals. One proposal is to lengthen the school day to provide students with the opportunity to take elective courses. The other proposal is to offer elective courses in the summer. Write a letter to the School Board in which you argue for lengthening the school day or for offering elective courses during the summer, explaining why you think your choice will encourage more students to take elective courses.

Begin your letter: Dear School Board:

Your response is evaluated according to how well you:

- Formulate a clear and focused position on the issue in the prompt
- Support that position with reasons and evidence appropriate to the position taken
- Focus on concerns of the specified audience (e.g., school board)
- Develop your argument in a coherent and logical manner
- Express your ideas using clear, effective language

You will receive a lower score for not taking a position on the specified issue, not supporting that position with reasons and evidence, not developing the argument, or not expressing those ideas using clear, effective language.

Please note that there is no spelling or grammar check program within the e-write test. Therefore, you must review your work carefully.

Tips for Taking the Writing Essay Test (e-Write)

Pace yourself

When asked to write an essay, most writers find it useful to do some planning before they start writing, and to do a final check of the essay when it is finished. It is unlikely that you will have time to draft and fully revise your essay. Therefore, taking a few minutes to plan your essay before you begin writing is a good strategy.

Plan before you write

Some writers like to plunge right in, but this is seldom a good way to do well on an essay writing task. Planning and prewriting gets you thinking about the issue, suggests patterns for presenting your thoughts, and allows you to come up with ideas for introducing and concluding your essay. Before writing, carefully read the prompt and make sure you understand it—reread it if you aren't sure. Decide how you want to answer the question in the prompt.

If you choose to do some prewriting, ask testing center staff if you may use paper they provide to organize your thoughts. This prewriting might simply be a list of ideas, reasons, and examples that you will use to explain your point of view. Write down what you think others might say in opposition to your point of view and think about how you would respond to their arguments. Think of how best to organize the ideas you are going to present in your essay. You can refer back to these notes as you write the essay on the computer.

Please note that because COMPASS e-Write is a secure test. Testing center staff will need to collect any notes you've made after you have completed testing.

Write

Once you're ready to write your essay on the computer, proceed with the confidence that you have planned your writing. At the beginning of your essay, make sure readers see that you understand the issue. Explain your point of view in a clear and logical way. If possible, discuss the issue in a broader context. Address what others might say to refute your point of view and present a counterargument. Use specific examples. Vary the structure of your sentences, and use varied and precise word choices. Make logical relationships clear by using transitional words and phrases. Do not wander off the topic. End with a strong conclusion that summarizes or reinforces your position.

Your essay will be evaluated according to how well you:

- Formulate a clear and focused position on the issue defined in the prompt
- Support that position with reasons and evidence appropriate to the position taken and the concerns of the reader/audience
- Develop the argument in a coherent and logical manner
- Express ideas using clear, effective language

Students often ask whether it is a good idea to organize the essay by using a formula, like "the five-paragraph essay." Points are neither awarded nor deducted for following familiar formulas, so feel free to use one or not as you prefer. Some writers find formulas too limiting, while other writers find them to be useful.

At the end of the writing prompt, there is a suggestion that you write a **multi-paragraph response of about 300-600 words. It's important to note that this suggestion is included to encourage you to write a fully formed response, rather than simply writing one or two sentences.** However, the exact numbers of words and paragraphs in your essay are less important than the clarity and development of your ideas. Writers who have something to say usually find that their ideas have a way of sorting themselves out at a reasonable length and in the right number of paragraphs.

As you write, remember that you have been asked to write a letter to a specific person or group who is looking for feedback regarding a specific issue. Your response is being written to persuade a person or group, so it's important that your essay be focused on your readers and their concerns. Begin your letter with an introduction; end your letter with a conclusion that summarizes the points you've made. Make sure that the audience understands your position at both the beginning and the end of your essay.

Review your essay

Take a few minutes before submitting your essay to read it over. Correct any mistakes in grammar, usage, punctuation, and spelling. Within the time available, try to make your essay as clear, as focused, and as polished as you can.

COMPASS® Mathematics Tests

The COMPASS Mathematics Tests are organized around five principal content domains: numerical skills/prealgebra, algebra, college algebra, geometry, and trigonometry. To ensure variety in the content and complexity of items within each domain, COMPASS includes mathematics items of three general levels of cognitive complexity: basic skills, application, and analysis. A basic skills item can be solved by performing a sequence of basic operations. An application item involves applying sequences of basic operations to novel settings or in complex ways. An analysis item requires students to demonstrate a conceptual understanding of the principles and relationships relevant to particular mathematical operations. Items in each of the content domains sample extensively from these three cognitive levels.

Please note that Ranken does not permit student to use outside calculators. A calculator is built into the test for students to use, and the test center also supplies scratch paper and pencil.



Numerical Skills/Prealgebra and Algebra Tests

Numerical Skills/Prealgebra Placement Test

Questions in the Numerical Skills/Prealgebra Placement Test range in content from basic arithmetic concepts and skills to the knowledge and skills considered prerequisites for a first algebra course. The Numerical Skills/Prealgebra Placement Test includes items from more than a dozen content areas; however, a majority of the questions come from the following categories:

1. Operations with Integers
2. Operations with Fractions
3. Operations with Decimals
4. Positive Integer Exponents, Square Roots, and Scientific Notation
5. Ratios and Proportions
6. Percentages
7. Averages (Means, Medians, and Modes)

Sample items for each of these categories are presented later in this section.

Algebra Placement Test

The Algebra Placement Test is composed of items from three curricular areas: elementary algebra, coordinate geometry, and intermediate algebra. Each of these three areas is further subdivided into a number of more specific content areas. Overall, the Algebra Placement Test includes items from more than 20 content areas; however, the majority of test questions fall within the following eight content areas:

1. Substituting Values into Algebraic Expressions
2. Setting Up Equations for Given Situations
3. Basic Operations with Polynomials
4. Factoring Polynomials
5. Linear Equations in One Variable
6. Exponents and Radicals
7. Rational Expressions
8. Linear Equations in Two Variables

Sample items for each of these categories are presented later in this section.

Numerical Skills/Prealgebra

1. $54 - 6 \div 2 + 6 = ?$
 - A. 6
 - B. 24
 - C. 27
 - D. 30
 - E. 57

2. The lowest temperature on a winter morning was -8°F . Later that same day the temperature reached a high of 24°F . By how many degrees Fahrenheit did the temperature increase?
 - A. 3°
 - B. 8°
 - C. 16°
 - D. 24°
 - E. 32°

3. If $\left(\frac{3}{4} - \frac{2}{3}\right) + \left(\frac{1}{2} + \frac{1}{3}\right)$ is calculated and the answer reduced to simplest terms, what is the denominator of the resulting fraction?
 - A. 24
 - B. 12
 - C. 6
 - D. 4
 - E. 3

4. $\frac{1}{2} + \left(\frac{2}{3} \div \frac{3}{4}\right) - \left(\frac{4}{5} \times \frac{5}{6}\right) = ?$
 - A. $\frac{1}{16}$
 - B. $\frac{17}{27}$
 - C. $\frac{13}{18}$
 - D. $\frac{7}{9}$
 - E. $\frac{5}{6}$

Numerical Skills/Prealgebra Placement Test Sample Items

5. Mr. Brown went grocery shopping to buy meat for his annual office picnic. He bought $7\frac{3}{4}$ pounds of hamburger, 17.85 pounds of chicken, and $6\frac{2}{3}$ pounds of steak. How many pounds of meat did Mr. Brown buy?
- A. 32.10
B. 31.31
C. 26.25
D. 22.10
E. 21.10
6. Four students about to purchase concert tickets for \$18.50 for each ticket discover that they may purchase a block of 5 tickets for \$80.00. How much would each of the 4 save if they can get a fifth person to join them and the 5 people equally divide the price of the 5-ticket block?
- A. \$ 1.50
B. \$ 2.50
C. \$ 3.13
D. \$10.00
E. \$12.50
7. In scientific notation, $20,000 + 3,400,000 = ?$
- A. 3.42×10^6
B. 3.60×10^6
C. 3.42×10^7
D. 3.60×10^7
E. 3.60×10^{12}
8. Saying that $4 < \sqrt{x} < 9$ is equivalent to saying what about x ?
- A. $0 < x < 5$
B. $0 < x < 65$
C. $2 < x < 3$
D. $4 < x < 9$
E. $16 < x < 81$

9. What value of x solves the following proportion?

$$\frac{9}{6} = \frac{x}{8}$$

- A. $5\frac{1}{4}$
- B. $6\frac{3}{4}$
- C. $10\frac{3}{4}$
- D. 11
- E. 12
10. If the total cost of x apples is b cents, what is a general formula for the cost, in cents, of y apples?
- A. $\frac{b}{xy}$
- B. $\frac{x}{by}$
- C. $\frac{xy}{b}$
- D. $\frac{by}{x}$
- E. $\frac{bx}{y}$
11. On a math test, 12 students earned an A. This number is exactly 25% of the total number of students in the class. How many students are in the class?
- A. 15
- B. 16
- C. 21
- D. 30
- E. 48
12. This year, 75% of the graduating class of Harriet Tubman High School had taken at least 8 math courses. Of the remaining class members, 60% had taken 6 or 7 math courses. What percent of the graduating class had taken fewer than 6 math classes?
- A. 0%
- B. 10%
- C. 15%
- D. 30%
- E. 45%

13. Adam tried to compute the average of his 7 test scores. He mistakenly divided the correct sum of all of his test scores by 6, which yielded 84. What is Adam's correct average test score?
- A. 70
 - B. 72
 - C. 84
 - D. 96
 - E. 98
14. A total of 50 juniors and seniors were given a mathematics test. The 35 juniors attained an average score of 80 while the 15 seniors attained an average of 70. What was the average score for all 50 students who took the test?
- A. 73
 - B. 75
 - C. 76
 - D. 77
 - E. 78

More Practice with Sample Numerical/Prealgebra Items

Averages: Means, Medians, and Modes)

1. What is the average (arithmetic mean) of 8, 7, 7, 5, 3, 2, and 2?
- A. $3\frac{4}{7}$
 B. $4\frac{5}{6}$
 C. $4\frac{6}{7}$
 D. 5
 E. $6\frac{4}{5}$

(Basic Operations with Decimals)

2. Ben is making wooden toys for the next arts and crafts sale. Each toy costs Ben \$1.80 to make. If he sells the toys for \$3.00 each, how many will he have to sell to make a profit of exactly \$36.00 ?
- A. 12
 B. 20
 C. 30
 D. 60
 E. 108

(Basic Operations with Fractions)

3. How many yards of material from a 24-yard length of cloth remain after 3 pieces, each $3\frac{1}{2}$ yards long, and 5 pieces, each $2\frac{1}{4}$ yards long, are removed?
- A. $2\frac{1}{4}$
 B. $4\frac{1}{4}$
 C. $4\frac{5}{6}$
 D. $10\frac{1}{4}$
 E. $10\frac{5}{6}$

(Percentages)

4. Phillip charged \$400 worth of goods on his credit card. On his first bill, he was not charged any interest, and he made a payment of \$20. He then charged another \$18 worth of goods. On his second bill a month later, he was charged 2% interest on his entire unpaid balance. How much interest was Phillip charged on his second bill?
- A. \$8.76
 B. \$7.96
 C. \$7.60
 D. \$7.24
 E. \$6.63

Answer Key for Sample Numerical Skills/Prealgebra Items

Item Number	Correct Answer	Content Category Item
1	E	Operations with Integers
2	E	Operations with Integers
3	B	Operations with Fractions
4	C	Operations with Fractions
5	A	Operations with Decimals
6	B	Operations with Decimals
7	A	Exponents
8	E	Exponents
9	E	Ratios and Proportions
10	D	Ratios and Proportions
11	E	Percentages
12	B	Percentages
13	B	Averages
14	D	Averages

Answer Key for More Practice with Sample Numerical Skills/Prealgebra Items

Item Number	Correct Answer	Content Category Item
1	C	Averages
2	C	Operations with Decimals
3	A	Operations with Fractions
4	B	Percentages

Algebra

1. If $x = -3$, what is the value $\frac{x^2 - 1}{x + 1}$?
- A. -4
 B. -2
 C. 2
 D. $3 \frac{2}{3}$
 E. 5
2. Doctors use the term *maximum heart rate (MHR)* when referring to the quantity found by starting with 220 beats per minute and subtracting 1 beat per minute for each year of a person's age. Doctors recommend exercising 3 or 4 times each week for at least 20 minutes with your heart rate increased from its *resting heart rate (RHR)* to its *training heart rate (THR)*, where

$$THR = RHR + .65(MHR - RHR)$$

Which of the following is closest to the *THR* of a 43-year-old person whose *RHR* is 54 beats per minute?

- A. 197
 B. 169
 C. 162
 D. 134
 E. 80
3. When getting into shape by exercising, the subject's maximum recommended number of heartbeats per minute (h) can be determined by subtracting the subject's age (a) from 220 and then taking 75% of that value. This relation is expressed by which of the following formulas?
- A. $h = .75(220 - a)$
 B. $h = .75(220) - a$
 C. $h = 220 - .75a$
 D. $.75h = 220 - a$
 E. $220 = .75(h - a)$

4. An airplane flew for 8 hours at an airspeed of x miles per hour (mph), and for 7 more hours at 325 mph. If the average airspeed for the entire flight was 350 mph, which of the following equations could be used to find x ?
- A. $x + 325 = 2(350)$
 B. $x + 7(325) = 15(350)$
 C. $8x - 7(325) = 350$
 D. $8x + 7(325) = 2(350)$
 E. $8x + 7(325) = 15(350)$
5. Which of the following is equivalent to $3a + 4b - (-6a - 3b)$?
- A. $16ab$
 B. $-3a + b$
 C. $-3a + 7b$
 D. $9a + b$
 E. $9a + 7b$
6. What is the sum of the polynomials $3a^2b + 2a^2b^2$ and $-ab^2 + a^2b^2$?
- A. $3a^2b - ab^2 + 3a^2b^2$
 B. $3a^2b - ab^2 + 2a^2b^2$
 C. $2a^2b + 3a^2b^2$
 D. $2a^2b^3 + 2a^4b^4$
 E. $-3a^3b^3 + 2a^4b$
7. Which of the following is a factor of the polynomial $x^2 - x - 20$?
- A. $x - 5$
 B. $x - 4$
 C. $x + 2$
 D. $x + 5$
 E. $x + 10$
8. Which of the following is a factor of $x^2 - 5x - 6$?
- A. $(x + 2)$
 B. $(x - 6)$
 C. $(x - 3)$
 D. $(x - 2)$
 E. $(x - 1)$

9. If $2(x - 5) = -11$, then $x = ?$

- A. $-\frac{21}{2}$
- B. -8
- C. $-\frac{11}{2}$
- D. -3
- E. $-\frac{1}{2}$

10.

If $\frac{4}{5} + \left(-\frac{3}{10}\right) = x + 1\frac{1}{2}$, then $x = ?$

- A. 2
- B. 1
- C. -1
- D. -2
- E. -10

11. For all nonzero r , t , and z values, $\frac{16r^3tz^5}{-4rt^3z^2} = ?$

- A. $-\frac{4z^3}{r^2t^2}$
- B. $-\frac{4r^2z^3}{t^2}$
- C. $-\frac{4rz}{t}$
- D. $-4r^4t^4z^7$
- E. $-4r^2t^2z^3$

12. For all $x > 0$ and $y > 0$, the radical expression $\frac{\sqrt{x}}{3\sqrt{x} - \sqrt{y}}$ is equivalent to:

- A. $\frac{3x - \sqrt{xy}}{9x + y}$
- B. $\frac{3x - \sqrt{xy}}{3x + y}$
- C. $\frac{3x + \sqrt{xy}}{9x - y}$
- D. $\frac{3x + \sqrt{xy}}{3x - y}$
- E. $\frac{x}{3x - y}$

13. For all $x \neq -4$, which of the following is equivalent to the expression below?

$$\frac{x^2 + 12x + 32}{x + 4}$$

- A. $x + 3$
 B. $x + 8$
 C. $x + 11$
 D. $x + 16$
 E. $x + 28$
14. Which of the following is a simplified expression equal to $\frac{9 - x^2}{x - 3}$ for all $x < -3$?

- A. $3x$
 B. $x + 3$
 C. $x - 3$
 D. $-x + 3$
 E. $-x - 3$

15. What is the slope of the line with the equation $2x + 3y + 6 = 0$?

- A. -6
 B. -3
 C. -2
 D. $-\frac{2}{3}$
 E. $\frac{2}{3}$

16. Point $A(-4, 1)$ is in the standard (x, y) coordinate plane. What must be the coordinates of point B so that the line $x = 2$ is the perpendicular bisector of AB ?

- A. $(-6, 1)$
 B. $(-4, -1)$
 C. $(-4, 3)$
 D. $(-2, 1)$
 E. $(8, 1)$

Answer Key for Sample Algebra Items

Item Number	Correct Answer	Content Category
1	A	Substituting Values into Algebraic Expressions
2	D	Substituting Values into Algebraic Expressions
3	A	Setting Up Equations for Given Situations
4	E	Setting Up Equations for Given Situations
5	E	Basic Operations with Polynomials
6	A	Basic Operations with Polynomials
7	A	Factoring Polynomials
8	B	Factoring Polynomials
9	E	Linear Equations in One Variable
10	C	Linear Equations in One Variable
11	B	Exponents
12	C	Exponents
13	B	Rational Expressions
14	E	Rational Expressions
15	D	Linear Equations in Two Variables
16	E	Linear Equations in Two Variables

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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 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. 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.
5. 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.
6. Don't be afraid to change an answer if you believe that your first choice was wrong.
7. 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.

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