English and math assessment is mandatory for all new students. Taking time to work through this *Placement Test Preparation Guide* will help you

- be ready to take your placement tests and
- be accurately assessed

resulting in proper placement in courses that match your skill level.
When you have completed the Placement Test Preparation Guides, you may test at any of the Tri-C Testing Centers. For additional placement testing information, contact the Testing Center of your choice.

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</table>
Placement Test Preparation

English and math assessment is mandatory at Cuyahoga Community College (Tri-C) and determines the initial courses for which you may register. Taking the placement tests seriously and doing well on them save you time and money because you may have fewer courses to take. Tri-C requires you to prepare for the placement tests by reviewing general test taking information and basic math and English concepts.

Students may use other qualifying assessments, such as ACT or SAT scores, instead of taking the COMPASS® Mathematics Skills and ACCUPLACER® WritePlacer tests. Please contact a Tri-C Testing Center for information.

The placement tests may be referred to as assessment tests or the COMPASS® and ACCUPLACER® tests. The placement tests are computer-delivered and untimed—that is, you may work at your own pace. After you complete the tests, you will get a score and placement report to help you make appropriate choices when you register for classes.

To prepare for the placement tests, review the following General Test Taking Strategies and answer the questions to check for understanding. Then work through the English and/or Mathematics Skills Preparation Guides and answer the sample test items to prepare for those assessments.

After you complete the placement tests, you will receive a copy of your scores and course placement options. Next, you will contact the Counseling Office to schedule your New Student Orientation or to meet with a counselor.

General Test Taking Strategies

Many students may experience text anxiety. Some test anxiety is normal and may help students focus during preparation and testing. Too much anxiety, however, can negatively affect performance. Students should try to think of testing is an opportunity to show what they know. The following testing strategies will help you increase your chances of performing better on the placement tests.

Start the Night Before
You will be able to concentrate better on the tests if you get plenty of rest and eat properly. Before testing, eat something healthy to give you energy to solve complex problems and help you focus, but avoid heavy foods that make you groggy.
Be Prepared
Work through this preparation guide and the English and/or the Mathematics guides to help you decide when you are as ready as possible to take the placement tests. When you test at Tri-C, bring photo identification, your Tri-C ID number, and your glasses, if you need them.

Allow Enough Time
The COMPASS® and ACCUPLACER® tests are not timed, and individual testing times vary. We suggest that you allow yourself at least one hour to complete the math test and one and one-half hours to complete the English test. Don’t rush.

Focus
When you carry extra emotional baggage - "I've got to ace this exam" or "If I mess up, I'll never get into my program" - your performance may suffer. The most constructive approach is to focus on the task at hand, put in as much time preparing as you can, and do your best.

Relax
The COMPASS® and ACCUPLACER® placement tests are designed to help you succeed in college. Your scores help you and Tri-C determine which courses are most appropriate for your current levels of knowledge and skills.

Read Carefully
Be sure you understand the directions for each test, and be sure to ask questions if you don’t.

Read each question, passage, and problem carefully until you understand what the question is asking. If answering an item requires several steps, be sure you consider all of them.

If you have a problem or question during the test, ask the test proctor for help. Although proctors cannot answer specific test questions for you, they can help with other types of problems.

Answering Multiple Choice Questions
Read the question carefully. Think of an answer before looking at the possible answers. This way the choices given on the test won't mislead you.

Read all the answer choices. Eliminate answers you know are not correct.

Select an answer, but don't keep changing your response. Usually your first choice is the best one, unless you misread the question or the choices.

On the placement tests, there is no guessing penalty; therefore, answer every question. However, once you choose your final answer and click submit, you cannot go back to change your answer.
Placement Test Preparation Questions

Circle the letter of the correct answer to each of these questions. You will turn in these answers to the Testing Center prior to taking the placement tests.

1. Students may use qualifying ACT scores instead of taking the COMPASS® Mathematics Skills and ACCUPLACER® WritePlacer tests.
   
   A. True
   B. False

2. What is the time limit for the COMPASS® Mathematics Skills Test?
   
   A. 30 minutes
   B. 60 minutes
   C. 45 minutes
   D. No time limit
   E. 75 minutes

3. Which of the following is not likely to help you to do your best on the placement tests?
   
   A. Eat well
   B. Complete the preparation guides
   C. Come in 30 minutes before closing
   D. Read directions carefully
   E. Get plenty of rest the night before testing

4. Proctors cannot answer specific test questions for you, but they can help with other types of problems.
   
   A. True
   B. False

5. On the placement tests, there is no penalty for guessing.
   
   A. True
   B. False
Taking Your Placement Tests
Are you prepared?

Placement testing is mandatory for all new students. Taking time to work through this Placement Test Preparation Guide will help you

- be ready to take your English placement test and
- be accurately assessed

resulting in proper placement in courses that match your skill level.
For additional placement testing information, please contact the Testing Center of your choice.

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The ACCUPLACER® WritePlacer test will determine your English course placement at Cuyahoga Community College, Tri-C. The WritePlacer test measures your ability to write effectively, which is critical to academic success. Your writing sample will be scored on the basis of how successfully it communicates a whole message to the readers for the stated purpose. Your score is based on your ability to express, organize and support your opinions and ideas, not the position you take on the essay topic. The test is not timed.

The essay gives you an opportunity to show how well you can develop and express your ideas in writing. You will first read a short passage and an assignment question that are focused on an important issue. You will then write an essay in which you develop your own point of view on the issue. You should support your position with appropriate reasoning and examples. The position you take will not influence your score.

Your essay will be given a holistic score that represents how clearly and effectively you expressed your position. The following six characteristics of writing will be considered:

- **Purpose and Focus:** The clarity with which you maintain your main idea or point of view
- **Organization:** The clarity with which you order and connect your ideas
- **Development and Support:** The extent to which you develop and support your ideas
- **Sentence Variety and Style:** The effectiveness of your sentence structure
- **Mechanical Conventions:** The extent to which your writing is free of errors in usage and mechanics
- **Critical Thinking:** The extent to which you communicate a point of view and demonstrate reasoned relationships among ideas

Scores on WritePlacer range from 1 to 8. An essay that is too short to be evaluated, written on a topic other than the one presented, or written in a language other than English will be given a score of zero.

These are the WritePlacer scores and the corresponding Tri-C English course placements.

<table>
<thead>
<tr>
<th>WritePlacer Score</th>
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<tr>
<td>0 or 1</td>
<td>English Boost Program</td>
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<tr>
<td>2</td>
<td>ENG 0980</td>
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<tr>
<td>3</td>
<td>ENG 0990</td>
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<td>4</td>
<td>ENG 0900 and ENG 1010</td>
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<td><strong>OR</strong></td>
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<td>5 – 6</td>
<td>ENG 1010</td>
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<tr>
<td>7 – 8</td>
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A WritePlacer prompt (essay question) consists of a short passage adapted from some longer text. Following the passage is an assignment that requires you to focus on the issue addressed in the passage.

On the pages that follow, you will find descriptions of WritePlacer score points and sample essays written for the prompt below that were assigned those particular scores.

Sample Prompt

Passage

An actor, when his cue came, was unable to move onto the stage. He said, “I can’t get in, the chair is in the way.” And the producer said, “Use the difficulty. If it’s drama, pick the chair up and smash it. If it’s comedy, fall over it.” From this experience the actor concluded that in any situation in life that is negative, there is something positive you can do with it.

Adapted from Lawrence Eisenberg, “Caine Scrutiny”

Assignment

Can any obstacle or disadvantage be turned into something good?

Score of 1
Tri-C Course Placement – English Boost

Description of Score of 1

A response in this category demonstrates no mastery of on-demand essay writing; the response is severely flawed by many or most of the following weaknesses:

- Lacks a viable point of view on the issue
- Demonstrates no awareness of audience
- Fails to present a main idea
- Demonstrates flawed reasoning
- Demonstrates no complexity of thought
- Is disorganized and/or disjointed
- Displays fundamental errors in word choice, usage and sentence structure
- Contains pervasive spelling, grammar, punctuation and mechanical errors

Sample Essay – Score of 1

The question is can any obstacle or disadvantage be turned into something good? Yes it can, because even in the story he couldn’t get in because of the chair and the guy tells him if it’s a drama, “Smash it and if it’s a comedy fall over it.” But when you think about it, if a girl was guilty and was pleading to say on how she was innocent and they catch her in a lie its practically the same thing. But that’s not the point but you can change a negative into a positive someway.
Score of 3
Tri-C Course Placement – ENG 0990
Description of Score of 3

A response in this category demonstrates little mastery of on-demand essay writing; the response is flawed by one or more of the following weaknesses:

- Presents a vague or limited point of view on the issue
- Demonstrates little awareness of audience
- Attempts to develop the main idea, although that attempt is inadequate
- Demonstrates weak critical thinking with little complexity of thought or with flawed reasoning
- Provides inappropriate or insufficient examples, reasons, or other evidence to support its position
- Is poorly organized and/or focused or demonstrates serious problems with coherence or progression of ideas
- Displays limited word choice and little sentence variety
- Contains many errors in mechanical conventions of usage, sentence structure, grammar, spelling and punctuation

Sample Essay – Score of 3

I do believe that any obstacle or disadvantage can be turned into something good. I believe this is because people learn many things from their mistakes and that’s the only way. In the example that is provided, the actor is obviously confused. The director makes a good point on how to work around it, and in a case where they make use of the chair that’s in the way, which helps make it funny, exciting, or depressing. In a play or musical of any type, it adds meaning. Not only does an obstacle or disadvantage get turned into something good, but it can discover new things. Whenever any situation happens, such as in this case, I’d laugh if it’s funny, cry if it’s dramatic, make a joke out of it, or act like it didn’t happen. Just keep in mind that the purpose of life is to learn from mistakes, which can turn into something good.
Score of 5
Tri-C Course Placement – ENG 1010
Description of Score of 5

An essay in this category demonstrates adequate mastery of on-demand essay writing although it will have lapses in quality. A typical essay:

- Develops a viable point of view on the issue
- May stray from the audience and purpose but is able to refocus
- Demonstrates competent critical thinking, using adequate examples, reasons, and other evidence to support its position
- Is generally organized and focused but could lack coherence and logical progression of ideas
- Exhibits adequate but inconsistent control of language
- Demonstrates some variety in sentence structure
- Contains some minor errors in sentence structure, grammar, spelling and punctuation

Sample Essay – Score of 5

In my lifetime, I have seen many ways an obstacle or disadvantage can be turned into a good think. Sometimes when something bad happens, it can prepare you for the future obstacles to come. For example, if a person gets a serious burn they would panic and not know what to do. If the same thing happened again, the person would be more prepared and have knowledge from the previous experience.

If someone is on crutches, about to open the door, would you open the door for them? If you are the person on crutches you would be at a disadvantage to others. But this can be turned into a good thing. You now have someone to open the door for you, and this is a good way to meet people and make friends.

Sometimes when things aren’t going your way, you have to improvise a little. For example, before a basketball game you see that the other team is much taller than your team. The coach might have only made up plays for a short team. The other team is tall, but slow. You use your speed to win the game. In the blink of an eye, you’ve change a disadvantage into a good thing.

The best comedians always turn an obstacle or disadvantage into a good thing. If the audience is not laughing at this performance, then he has to change what he’s doing. This obstacle about the audience not laughing he could make a joke about, then making the obstacle into a good thing.
Writing On Demand: Doing Your Best Work Under Pressure!

As part of your ACCUPLACER testing, you are required to write an essay. You will be given a prompt (essay question) and expected to write your paper – immediately. As your brain begins to scream and your hands freeze up, take a deep breath and use the following strategies to conquer this essay!

Prewriting your Essay in 3 Steps

Prewriting is an important part of the writing process. When you prewrite, you can be sure you know what you want to say and plan how you are going to say it. To many students, this seems like an extra step, but in reality it makes the writing process easier, faster, and better.

Step 1: Understand the Essay Prompt:
Read the prompt carefully. Figure out what the subject of your writing should be, based on the prompt.

Step 2: Develop your Thesis:
On a sheet of scrap paper, write a one-sentence thesis statement. This is the sentence that contains the subject of your essay and your point of view/opinion/attitude toward the subject. THIS IS NOT THE FIRST SENTENCE OF YOUR FIRST PARAGRAPH! This is your map for writing your essay; it directs what the entire piece will be about. A strong thesis statement:

- contains the subject
- uses key words/points from the essay prompt
- responds to the prompt with a specific point of view

Step 3: Outline (optional)
If you have found it useful in the past, you might write a simple outline of your essay. Your outline will help you stay focused on your thesis, which is the point you are making.

Here’s an example of a simple outline:

| Thesis: Growing produce in local farms and city gardens will benefit the community. |
| Benefits to write about: |
| • Lower impact on environment → reduce packing and spoilage, less shipping fuel |
| • Add to local economy → help farmers, more farm markets |
| • Improve nutrition → fresher food, more organics |
Writing On Demand: Doing Your Best Work Under Pressure!

Writing your Essay in 3 Steps

You can now use your prewriting to begin writing your essay. Follow your outline, if you wrote one. Take your time. Don’t stress out.

Step 1: Write your Introduction:
Start typing at the computer. A short (3-5 sentences) introductory paragraph is the first order of business; type the thesis statement from your prewriting at the end of this first paragraph. Important: everything that follows must support the idea in your thesis.

Step 2: Write the body paragraphs of your essay:
Now compose the body paragraphs, starting each paragraph of the body with a topic sentence. Make sure that your topic sentences express the main ideas of the body paragraphs. Important: every detail in a body paragraph must support the topic sentence for that paragraph.

Your body paragraphs should include two or three major details and be supported by two or three minor ones. The evidence for your ideas will come from your personal experiences, current and past events, and content from your previous school courses. Remember to vary the types of evidence that you present, and use several types of evidence to prove your point (thesis statement).

Step 3: Write your conclusion:
Write a short conclusion to your essay. Again, make it 3-5 sentences, one of which will be your restated-but-slightly-reworded thesis statement. ADD NO NEW IDEAS HERE! You are almost done, remember? Get out gracefully.

Completing your Essay

Proofread: Review your essay and make some quick fixes by correcting any spelling, punctuation, or grammar errors you spot. Check your paper’s body against your thesis statement: Did you prove what you said you would? If not, consider changing your thesis statement to better reflect what you had to say.

Finally, submit your essay. When you’ve done your revisions and editing, it is time to click on “Submit.”

Good luck!
In addition to the WritePlacer test for English placement, you will also take the ACCUPLACER® Reading Comprehension test. The Reading Comprehension test measures your ability to understand what you read, to identify main ideas and to make inferences.

In the ACCUPLACER® Reading Comprehension test, there are 20 questions of two primary types.
• The first type of question consists of a reading passage followed by a question based on the text. Both short and long passages are provided. The reading passages can also be classified according to the kind of information processing required, including explicit statements related to the main idea, explicit statements related to a secondary idea, application, and inference.
• The second type of question, sentence relationships, presents two sentences followed by a question about the relationship between these two sentences. The question may ask, for example, if the statement in the second sentence supports that in the first, if it contradicts it, or if it repeats the same information.

You will turn in your answers to these sample questions at a Tri-C Testing Center before you take the English placement test to show that you have prepared. You can also check your answers to these questions at one of the Testing Centers before testing.

Reading Comprehension Sample Questions
Read the statement or passage and then circle the best answer to the question. Answer the question based on what is stated or implied in the statement or passage.

1. In the words of Thomas DeQuincey, “It is notorious that the memory strengthens as you lay burdens upon it.” If, like most people, you have trouble recalling the names of those you have just met, try this: The next time you are introduced, plan to remember the names. Say to yourself, I’ll listen carefully; I’ll repeat each person’s name to be sure I’ve got it, and I will remember.” You’ll discover how effective this technique is and probably recall those names for the rest of your life.

   The main idea of the paragraph maintains that the memory
   A. always operates at peak efficiency.
   B. breaks down under great strain.
   C. improves if it is used often.
   D. becomes unreliable if it tires.

2. Unemployment was the overriding fact of life when Franklin D. Roosevelt became president of the United States on March 4, 1933. An anomaly of the time was that the government did not systematically collect statistics of joblessness; actually it did not start doing so until 1940. The Bureau of Labor Statistics later estimated that 12,830,000 persons were out of work in 1933, about one-fourth of a civilian labor force of more than 51 million. Roosevelt signed the Federal Emergency Relief Act on May 12, 1933. The president selected Harry L. Hopkins, who headed the New York relief program, to run FERA. A gifted administrator, Hopkins quickly put the program into high gear. He gathered a small staff in Washington and brought the state relief organizations into the FERA system. While the agency tried to provide all the necessities, food came first. City dwellers usually got an allowance for fuel, and rent for one month was provided in case of eviction.

   This passage is primarily about
   A. unemployment in the 1930s.
   B. the effect of unemployment on United States families.
   C. President Franklin D. Roosevelt’s presidency.
   D. President Roosevelt’s FERA program.
3. It is said that a smile is universally understood. And nothing triggers a smile more universally than a taste of sugar. Nearly everyone loves sugar. Infant studies indicate that humans are born with an innate love of sweets. Based on statistics, a lot of people in Great Britain must be smiling because on average, every man, woman, and child in that country consumes 95 pounds of sugar each year.

From this passage it seems safe to conclude that the English
A. do not know that too much sugar is unhealthy.
B. eat desserts at every meal.
C. are fonder of sweets than most people.
D. have more cavities than any other people.

4. With varying success, many women around the world today struggle for equal rights. Historically, women have achieved greater equality with men during periods of social adversity. The following factors initiated the greatest number of improvements for women: violent revolution, world war, and the rigors of pioneering in an undeveloped land. In all three cases, the essential element that improved the status of women was a shortage of men, which required women to perform many of society’s vital tasks.

We can conclude from the information in this passage that
A. women today are highly successful in winning equal rights.
B. only pioneer women have been considered equal to men.
C. historically, women have only achieved equality through force.
D. historically, the principle of equality alone has not been enough to secure women equal rights.

Directions for questions 5–8
For the questions that follow, two sentences are followed by a question or statement. Read the sentences, then circle the best answer to the question or the best completion of the statement.

5. The Midwest is experiencing its worst drought in 15 years. Corn and soybean prices are expected to be very high this year.

What does the second sentence do?
A. It restates the idea found in the first.
B. It states an effect.
C. It gives an example.
D. It analyzes the statement made in the first.

6. Social studies classes focus on the complexity of our social environment. The subject combines the study of history and the social sciences and promotes skills in citizenship.

What does the second sentence do?
A. It expands on the first sentence.
B. It makes a contrast.
C. It proposes a solution.
D. It states an effect.
7. Knowledge of another language fosters greater awareness of cultural diversity among the peoples of the world. Individuals who have foreign language skills can appreciate more readily other peoples’ values and ways of life.

How are the two sentences related?
A. They contradict each other.
B. They present problems and solutions.
C. They establish a contrast.
D. They repeat the same idea.

8. Serving on a jury is an important obligation of citizenship. Many companies allow their employees paid leaves of absence to serve on juries.

What does the second sentence do?
A. It reinforces what is stated in the first.
B. It explains what is stated in the first.
C. It expands on the first.
D. It draws a conclusion about what is stated in the first.

9. TheWritePlacer test measures your ability to
A. write effectively
B. comprehend written material
C. edit a document

10. AWritePlacer essay that is too short to be evaluated will be
A. returned to you via email.
B. given a score of zero.
C. be given a high score.

11. YourWritePlacer essay must be written
A. in English.
B. in first person.
C. in past tense.

12. TheWritePlacer test is a timed test.
A. True
B. False

You will find additional information about the ACCUPLACER® tests and additional sample questions at https://accuplacer.collegeboard.org/students.

The ACCUPLACER® test information in this preparation guide has been reproduced with permission from The College Board.
English and math assessment is mandatory for all new students. Taking time to work through this Placement Test Preparation Guide will help you

- be ready to take your math placement test and
- be accurately assessed

resulting in proper placement in courses that match your skill level.
To prepare for the ACCUPLACER® math placement test, begin by reviewing the material in this packet. You will find descriptions of the ACCUPLACER® math tests, resources, problems with completely worked solutions, and problems for you to work and turn in at the Testing Center of your choice.

ACCUPLACER®'s online, adaptive format, chooses test questions based on your responses to each question you’ve already answered. As you work through the test, questions increase or decrease in difficulty depending on your answers. ACCUPLACER® tests are untimed, so you can work at a comfortable pace. It’s important to give yourself enough time to do your best and complete the test because your results are the key factor in determining the course you will take. You will receive a score report with course placement immediately after you take the test.

There are three ACCUPLACER® math tests: Arithmetic, Elementary Algebra, and College-Level Math. You will begin with a set of 12 Elementary Algebra questions. Based on your performance in Elementary Algebra, you may be given a set of 17 Arithmetic or 20 College-Level Mathematics questions to answer. The topics included in each test are listed below.

**Elementary Algebra**
1. Numbers and quantities: Topics include integers and rational numbers, computation with integers and negative rationals, absolute value, and ordering.

2. Algebraic expressions: Topics include evaluation of simple formulas and expressions, adding and subtracting monomials and polynomials, multiplying and dividing monomials and polynomials, evaluating positive rational roots and exponents, simplifying algebraic fractions, and factoring.

3. Problem solving: Topics include translating written phrases into algebraic expressions, solving linear equations and inequalities, quadratic equations (by factoring), and verbal problems presented in an algebraic context.

**Arithmetic**
1. Operations with whole numbers and fractions: Topics include addition, subtraction, multiplication, division, recognizing equivalent fractions and mixed numbers, and estimating.

2. Operations with decimals and percents: Topics include addition, subtraction, multiplication, and division with decimals; percent problems; recognition of decimals; percent equivalencies; and estimating.

3. Applications and problem solving: Topics include rate, percent and measurement problems; simple geometry problems; and distribution of a quantity into its fractional parts.
**College-Level Math**

1. Algebraic operations: Topics include simplifying rational algebraic expressions, factoring and expanding polynomials, and manipulating roots and exponents.

2. Solutions of equations and inequalities: Topics include solving linear and quadratic equations and inequalities, systems of equations and other algebraic equations.

3. Coordinate geometry: Topics include plane geometry, the coordinate plane, straight lines, conics, sets of points in the plane, and algebraic function graphs.

4. Functions: Topics include polynomial, algebraic, exponential, and logarithmic functions.

5. Trigonometry: Topics include trigonometric functions.

6. Applications and other topics: Topics include complex numbers, series and sequences, determinants, permutations and combinations, factorials, and word problems.

**Resources**

You can find links to both the ACCUPLACER Free Sample Questions and the free Study App for your computer, smartphone, or tablet at [https://accuplacer.collegeboard.org/students](https://accuplacer.collegeboard.org/students).

You can access hundreds of questions to familiarize yourself with the ACCUPLACER® basic content and experience by using the free Study App. Both the ”Sample Test” and “Learn as You Go” Study App features provide hundreds of questions, feedback, and explanations of correct and incorrect answers.

You may also reference these online math resources for additional explanation and practice.

[https://tric.coursesites.com/](https://tric.coursesites.com/) is Tri-C’s FREE pre-algebra Massive Open Online Course (MOOC) designed to help you brush up on your math skills so you can test into a higher-level math course.

[www.patrickjmt.com](http://www.patrickjmt.com)
[www.khanacademy.org](http://www.khanacademy.org)
[www.hippocampus.org](http://www.hippocampus.org)
[www.purplemath.com](http://www.purplemath.com)

Once you have completed the Math Placement Test Preparation, you may test at any of the Tri-C testing centers.

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Problem #1 (Elementary Algebra)

What is the value of the expression $2x^2 + 3xy - 4y^2$ when $x = 2$ and $y = -4$

A. -80  
B. -32  
C. 32  
D. 80

Solution

Evaluate a Polynomial in Several Variables
1. Substitute the given value for each variable
2. Perform the resulting computation using the order of operations and rules for signed numbers

When $x = 2$ and $y = -4$, we have

\[
2(2)^2 + 3(2)(-4) - 4(-4)^2 \\
= 2(4) + 3(2)(-4) - 4(16) \\
= 8 - 24 - 64 \\
= -80
\]

Thus, our answer is A. -80

Problem #2 (Arithmetic)

All of the following are ways to write 25 percent of N EXCEPT

A. $(0.25)N$  
B. $\frac{25}{100} N$  
C. $\frac{1}{4} N$  
D. $25N$

Solution

We are looking for the expression that is not equivalent to “25 percent of N.” Note: the word “of” in this context indicates the operation of multiplication

A. Since 0.25 is the decimal form of 25%, $(0.25)N$ is equivalent to “25% of N.”
B. Since $\frac{25}{100}$ is the fractional form of 25%, $\frac{25}{100}N$ is equivalent to “25% of N.”
C. Since $\frac{1}{4}$ is the simplified fractional form of 25%, $\frac{1}{4} N$ is equivalent to “25% of N.”
D. Since 25 is not equal to 25%, $25N$ is not equivalent to “25% of N.”

Thus, our answer is D. 25N
**Problem #3 (Elementary Algebra)**

For what values of x is the value of \( x^2 - 6x - 7 \) negative?

A. \(-7 < x < 1\)
B. \( x < -1 \) or \( x > 7 \)
C. \( x = -1 \) or \( x = 7 \)
D. \(-1 < x < 7\)
E. For no real numbers \( x \)

**Solution**

To find the values for which \( x^2 - 6x - 7 \) is negative, we must solve the inequality \( x^2 - 6x - 7 < 0 \).

We will use the following steps:

1. Solve the associated quadratic equation by factoring to find boundary points*
2. Use the boundary points to divide the number line into intervals
3. Choose a test point from each interval to test if the interval is a solution

Step 1. The associated quadratic equation for the inequality \( x^2 - 6x - 7 < 0 \) is \( x^2 - 6x - 7 = 0 \).

\[
\begin{align*}
x^2 - 6x - 7 &= 0 \\
(x + 1)(x - 7) &= 0 \\
\text{Set each factor equal to zero} \\
x - 7 &= 0 \text{ and } x + 1 = 0 \\
\text{Solve the equations} \\
x &= \{-1, 7\} \\
\text{These are our two boundary points}
\end{align*}
\]

Step 2.

\[
\begin{array}{c}
\text{x = -1} \\
\text{x = 7}
\end{array}
\]

Step 3.

We have three intervals to test. We will use the points \( x = -2, 0 \) and \( 8 \) to see if they are solutions.

If \( x = -2 \)

\[
(-2)^2 - 6(-2) - 7 = 4 + 12 - 7 = 9
\]

\(-9 < 0\) is false! This means the interval containing \( x = -2 \) is not a solution.

If \( x = 0 \)

\[
0^2 - 6(0) - 7 = -7
\]

\(-7 < 0\) is true! This means the interval containing \( x = 0 \) is a solution.

If \( x = 8 \)

\[
8^2 - 6(8) - 7 = 64 - 48 - 7
\]

\(-9 < 0\) is false! This means the interval containing \( x = 8 \) is not a solution.

Thus, our answer is D. \(-1 < x < 7\)

* You could also use the quadratic formula to solve the equation instead of factoring

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Problem #4 (Elementary Algebra)

An apartment building contains 12 units consisting of one- and two-bedroom apartments that rent for $360 and $450 per month, respectively. When all units are rented, the total monthly rental is $4,950. What is the number of two-bedroom apartments?

A. 3  
B. 4  
C. 5  
D. 6  
E. 7

Solution

Let \( x \) = number of one-bedroom apartments
Let \( y \) = number of two-bedroom apartments

We know (1) the total number of apartments is 12, and (2) the total monthly rental is $4,950, where one-bedrooms rent for $360 and two-bedrooms rent for $450.

Thus, we may write the following system of equations

\[
\begin{align*}
(1) & \quad x + y = 12 \quad \text{The total number of rooms} \\
(2) & \quad 360x + 450y = 4,950 \quad \text{Total monthly rent}
\end{align*}
\]

This gives us a system of equations. We will solve this by using substitution, and solve for \( x \) in equation (1).

\[
\begin{align*}
\text{Let } x &= 12 - y \\
\text{substituting into equation (2)} & \quad 360(12 - y) + 450y = 4,950 \\
\text{Distributing} & \quad 4,320 - 360y + 450y = 4,950 \\
\text{Combining like terms} & \quad 4,320 + 90y = 4,950 \\
\text{Subtracting 4,320 from both sides of the equation} & \quad 90y = 630 \\
\text{Dividing by 90 on both sides of the equation} & \quad y = 7 \\
\text{Substituting back in (1)} & \quad x = 12 - 7 = 5 \\
\text{x = 5 one-bedroom apartments} & \\
\text{y = 7 two-bedroom apartments}
\end{align*}
\]

Thus, our answer is E. 7

For more practice, use a search engine like Google to enter topics and find more examples, or instructional videos. For example, after reviewing the first four examples, you may wish to find more information on evaluating polynomials, order of operations, operations with signed numbers, percent of a number problems, inequalities or systems of equations. You may also try using YouTube to find videos with instruction and worked problems.
Problem #5 (Arithmetic)

\[3 \frac{1}{3} - 2 \frac{2}{5} = \]

A. \(\frac{1}{15}\)

B. \(\frac{14}{15}\)

C. \(1 \frac{1}{15}\)

D. \(1 \frac{1}{2}\)

Solution

We will find the difference of mixed numbers by first converting the mixed numbers to improper fractions. Then we will find the difference, then convert back to a mixed number.

To convert to an improper fraction, we multiply the denominator times the whole number plus the numerator. This result is then placed over the denominator.

\[
3 \frac{1}{3} - 2 \frac{2}{5} \quad \text{Converting to improper fractions}
\]

\[
\frac{10}{3} - \frac{12}{5} \quad \text{Change denominators to LCD of 15}
\]

\[
\frac{50}{15} - \frac{36}{15} = \frac{14}{15} \quad \text{Subtract the numerators}
\]

Thus, our answer is  B. \(\frac{14}{15}\)

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Problem #6 (College-Level Math)

The graph of which of the following equations is a straight line parallel to the graph of \( y = 2x \)

A. \( 4x - y = 4 \)
B. \( 2x - 2y = 2 \)
C. \( 2x - y = 4 \)
D. \( 2x + y = 2 \)
E. \( x - 2y = 4 \)

Solution

Parallel lines must have the same slope. We want to be parallel to \( y = 2x \). Since \( y = 2x \) is in slope-intercept form (\( y = mx + b \)), we see that the slope is equal to 2. Therefore, we need to find the equation that has a slope of 2. We can do this by solving all of the equations for \( y \) i.e. put them into slope intercept form. By doing this, we will be able to see the slope of each line. The line we are looking for will have a slope of 2.

Solving each equation for \( y \), and comparing to \( y = mx + b \), we obtain

A. \[
\begin{align*}
 4x - y &= 4 \\
-4x &= -4x \\
-y &= 4x + 4 \\
-1 &= -1 \\
y &= 4x - 4, \text{ so } m = 4
\end{align*}
\]

B. \[
\begin{align*}
 2x - 2y &= 2 \\
-2x &= -2x \\
-2y &= -2x + 2 \\
-2 &= -2 \\
y &= x - 2, \text{ so } m = 1
\end{align*}
\]

C. \[
\begin{align*}
 2x - y &= 4 \\
-2x &= -2x \\
-y &= -2x + 4 \\
-1 &= -1 \\
y &= 2x - 4, \text{ so } m = 2
\end{align*}
\]

D. \[
\begin{align*}
 2x + y &= 2 \\
-2x &= -2x \\
y &= 2x + 2 \\
y &= -2x + 2, \text{ m } = -2
\end{align*}
\]

E. \[
\begin{align*}
 x - 2y &= 4 \\
-x &= -x \\
-2y &= -x + 4 \\
-2 &= -2 \\
y &= \frac{1}{2}x - 2, \text{ so } m = \frac{1}{2}
\end{align*}
\]

Thus, our answer is C. \( y = 2x - 4, \text{ m } = 2 \)

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Work out the following sample questions and return this packet to an Assessment Center before taking the placement tests.

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Mathematics Sample Questions

Work out these sample questions and return this packet to an Assessment Center before taking the placement tests.

(1) \(-3(5 - 6) - 4(2 - 3) =\
A. -7
B. -1
C. 1
D. 7

(2) If \(2x - 3(x+4) = -5\), then \(x =\
A. -17
B. -7
C. 7
D. 17

(3) \(20 - \frac{4}{5}x \geq 16\
Which of the following inequalities is equivalent to the inequality shown above?
A. \(x \leq 5\)
B. \(x \geq 5\)
C. \(x \leq \frac{65}{2}\)
D. \(x \geq \frac{65}{2}\)

(4) For which of the following equations are \(x = 5\) and \(x = -5\) both solutions?
A. \(x^2 + 25 = 0\)
B. \(x^2 - 25 = 0\)
C. \(x^2 + 10x - 25 = 0\)
D. \(x^2 - 5x - 25 = 0\)

(5) Which of the following is a factor of both \(x^2 - x - 6\) and \(x^2 - 5x + 6\)?
A. \(x - 3\)
B. \(x - 2\)
C. \(x + 2\)
D. \(x + 3\)

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(6) An equation of the line that contains the origin and the point (1, 2) is
   A. \( y = 2x \)
   B. \( 2y = x \)
   C. \( y = x - 1 \)
   D. \( y = 2x + 1 \)
   E. \( \frac{y}{2} = x - 1 \)

(7) \( 5y(2y - 3) + (2y - 3) = \)
   A. \((5y + 1)(2y + 3)\)
   B. \((5y + 1)(2y - 3)\)
   C. \((5y - 1)(2y + 3)\)
   D. \((5y - 1)(2y - 3)\)
   E. \(10y(2y - 3)\)

(8) A soccer team played 160 games and won 65 percent of them. How many games did the team win?
   A. 94
   B. 104
   C. 114
   D. 124

(9) 32 is 40% of what number?
   A. 12.8
   B. 128
   C. 80
   D. 800

(10) \( 2\frac{1}{2} + 4\frac{2}{3} = \)
    A. \(6\frac{1}{6}\)
    B. \(6\frac{5}{6}\)
    C. \(7\frac{1}{6}\)
    D. \(7\frac{5}{6}\)