

Sample Excerpt: The CAEC Strategy Guide

Welcome to a preview of Your Blueprint for CAEC Success.

This document contains selected excerpts from our complete study guide, curated to demonstrate how Complete Test Preparation Inc. approaches adult education. Unlike traditional textbooks that focus solely on rote memorization, our content is designed to build confidence through clear analogies, integrated technology, and strategic coaching.

In this sample, you will find:

Accessible Science: See page [Page 56] ("The City Inside You") for an example of how we use relatable analogies to demystify complex biology concepts.

Hybrid Learning: See page [Page 47] to see how we integrate QR codes and video tutorials directly into the text, supporting diverse learning styles.

Active Coaching: Our "Common Essay Mistakes" [Page 52] section moves beyond simple prompts to teach students the strategy of writing.

Visual Literacy: The "Political Cartoon Quiz" [Page 18] demonstrates our commitment to preparing students for the specific visual requirements of the CAEC.

We hope this glimpse demonstrates the engagement and rigor your students will experience with our content.

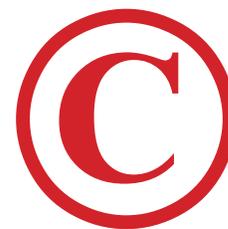
THE CAEC SCORE BOOSTER

UPGRADED & EXPANDED



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We strongly recommend that students check with exam providers for up-to-date information regarding test content.

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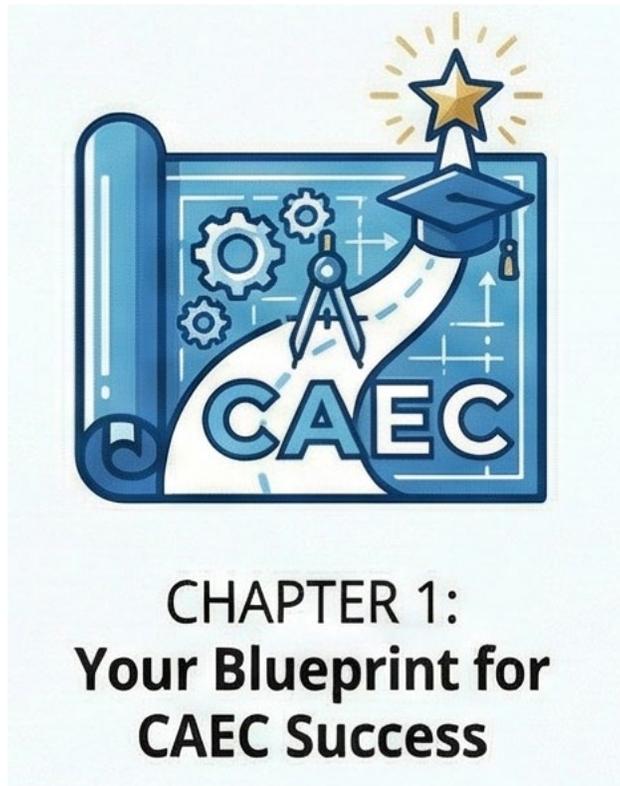
We welcome your feedback. Email us at feedback@test-preparation.ca with your comments and suggestions. We carefully review all suggestions and often incorporate reader suggestions into upcoming versions. As a Print on Demand Publisher, we update our products frequently.

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YOUR BLUEPRINT FOR CAEC SUCCESS



CONGRATULATIONS! By deciding to take the CAEC Exam, you have taken the first step toward a great future! Of course, there is no point in taking this important examination unless you intend to do your best to earn the highest grade you possibly can. That means getting yourself organized and discovering the best approaches, methods and strategies to master the material. Yes, that will require real effort and dedication, but if you are willing to focus your energy and devote the study time necessary, before you know it you will be opening that letter of acceptance to the school of your dreams!

We know that taking on a new endeavour can be scary, and it is easy to feel unsure of where to begin. That's where we come in. This study guide is designed to help you improve your test-taking skills, show you a few tricks of the trade and increase both your competency and confidence.

THE CAEC EXAM

The CAEC exam has five sections, social studies, science, reading, mathematics and writing. The reading section consists of reading comprehension questions. The mathematics section contains three sections, arithmetic, algebra and college level math. The writing section contains an essay question.

While we seek to make our guide as comprehensive as possible, note that like all exams, the CAEC exam might be adjusted at some future point. New material might be added, or content that is no longer relevant or applicable might be removed. It is always a good idea to give the materials you receive when you register to take the CAEC a careful review.

HOW THIS STUDY GUIDE IS ORGANIZED

This study guide is divided into three sections. The first section, Self-Assessments, which will help you recognize your areas of strength and weaknesses. This will be a boon when it comes to managing your study time most efficiently; there is not much point of focusing on material you have already got firmly under control. Instead, taking the self-assessments will show you where that time could be much better spent. In this area you will begin with a few questions to evaluate quickly your understanding of material that is likely to appear on the CAEC. If you do poorly in certain areas, simply work carefully through those sections in the tutorials and then try the self-assessment again.

The second section, Tutorials, offers information in each of the content areas, as well as strategies to help you master that material. The tutorials are not intended to be a complete course, but cover general principles. If you find that you do not understand the tutorials, it is recommended that you seek out additional instruction.

Third, we offer two sets of practice test questions, similar to those on the CAEC exam.

THE CAEC STUDY PLAN

Now that you have made the decision to take the CAEC, it is time to get started. Before you do another thing, you will need to figure out a plan of attack. The very best study tip is to start early! The longer the time period you devote to regular study practice, the more likely you will retain the material and access it quickly. If you thought that 1×20 is the same as 2×10 , guess what? It really is not, when it comes to study time. Reviewing material for just an hour per day over the course of

Pass the CAEC!

20 days is far better than studying for two hours a day for only 10 days. The more often you revisit a particular piece of information, the better you will know it. Not only will your grasp and understanding be better, but your ability to reach into your brain and quickly and efficiently pull out the tidbit you need, will be greatly enhanced as well.

The great Chinese scholar and philosopher Confucius believed that true knowledge could be defined as knowing what you know and what you do not know. The first step in preparing for the CAEC is to assess your strengths and weaknesses. You may already have an idea of what you know and what you do not know, but evaluating yourself using our Self-Assessment modules for each of the three areas, Math, Writing and Reading Comprehension, will clarify the details.

Making a Study Schedule

To make your study time most productive, you will need to develop a study plan. The purpose of the plan is to organize all the bits of pieces of information in such a way that you will not feel overwhelmed. Rome was not built in a day, and learning everything you will need to know to pass the CAEC is going to take time, too. Arranging the material you need to learn into manageable chunks is the best way to go. Each study session should make you feel as though you have accomplished your goal, or at least are closer, and your goal is simply to learn what you planned to learn during that particular session. Try to organize the content in such a way that each study session builds on previous ones. That way, you will retain the information, be better able to access it, and review the previous bits and pieces at the same time.

SELF-ASSESSMENT

The Best Study Tip! The very best study tip is to start early! The longer you study regularly, the more you will retain and 'learn' the material. Studying for 1 hour per day for 20 days is far better than studying for 2 hours for 10 days.

What don't you know?

The first step is to assess your strengths and weaknesses. You may already have an idea of where your weaknesses are, or you can take our Self-assessment modules for each of the areas, Reading Comprehension, Arithmetic, Essay Writing, Algebra and College Level Math.

Getting Started

Topic	My Confidence			Priority
Reading and Writing				
Reading: Main Idea	1	2	3	<input type="checkbox"/> High
Reading: Making Inferences	1	2	3	<input type="checkbox"/> High
English: Grammar and Usage	1	2	3	<input type="checkbox"/> High
English: Sentence Skills	1	2	3	<input type="checkbox"/> High
Writing: The Essay	1	2	3	<input type="checkbox"/> High
Mathematics (Foundational)				
Math: Arithmetic (Add, Sub, Mult, Div)	1	2	3	<input type="checkbox"/> High
Math: Decimals, Fractions & Percentages	1	2	3	<input type="checkbox"/> High
Math: Word Problems & Logic	1	2	3	<input type="checkbox"/> High
Mathematics (Advanced)				
Algebra: Basic Expressions & Linear Equations	1	2	3	<input type="checkbox"/> High
Algebra: Exponents & Polynomials	1	2	3	<input type="checkbox"/> High
Algebra: Quadratics	1	2	3	<input type="checkbox"/> High
Geometry: Simple Shapes (Area/Perimeter)	1	2	3	<input type="checkbox"/> High
Geometry: Coordinate Geometry (Graphing)	1	2	3	<input type="checkbox"/> High
Social Studies				
Social Studies: Canadian History & Civics	1	2	3	<input type="checkbox"/> High
Social Studies: World Geography & Economics	1	2	3	<input type="checkbox"/> High

MAKING A STUDY SCHEDULE

THE 3-WEEK "SPRINT" PLAN

Goal: Build confidence in Math basics and get comfortable reading historical texts.

- **Day 1: Arithmetic & Number Sense**
 - **Focus:** Arithmetic, Decimals, Fractions, and Percentages.
 - **Task:** Complete 20 practice questions without a calculator.
- **Day 2: Grammar Boot Camp**
 - **Focus:** Sentence Skills, Sentence Correction, and Basic Grammar.
 - *Why:* Clear sentences are the building blocks of the essay.
- **Day 3: Reading & History**
 - **Focus:** Reading Comprehension (Main Idea) + **Social Studies (Canadian History)**.
- **Day 4: Math Word Problems**
 - **Focus:** Problem Solving strategies.
- **Day 5: Weekly Review**
 - Review any "Red" topics from Week 1.

WEEK 2: THE "HEAVY LIFTING" ALGEBRA AND ESSAY

Goal: Tackle the hardest Math and Writing tasks while the brain is fresh.

- **Day 1: The Essay**
 - **Focus:** Essay Structure & Planning.
 - **Task:** Write one practice outline for a persuasive topic.
- **Day 2: Algebra Part I**
 - **Focus:** Basic Algebra & Linear Equations.
- **Day 3: Deep Reading & Geography**
 - **Focus:** Making Inferences + **Social Studies (Geography & World Issues)**.
- **Day 4: Algebra Part II**
 - **Focus:** Exponents & Polynomials.
- **Day 5: Essay Practice**

Task: Write one full practice essay under a timer (45 mins).

WEEK 3: ADVANCED SKILLS & FINAL POLISH

Goal: Master complex Math and simulate the test environment.

- **Day 1: Advanced Math**
 - **Focus:** Quadratics (Equations & Factoring).
- **Day 2: Geometry & Coordinates**
 - **Focus:** Simple Geometry (Area/Perimeter) & Coordinate Geometry (Graphing).
- **Day 3: Civics & Review**
 - **Focus: Social Studies (Government/Civics)** + Mixed Review.
- **Day 4: Simulated Mini-Test**
 - Take a timed practice section for Math and Social Studies.
- **Day 5: The Final Tune-Up**
 - Review your “Cheat Sheet” of formulas and strategies. Rest.

TIPS FOR MAKING A SCHEDULE

Once you make a schedule, stick with it! Make your study sessions reasonable. If you make a study schedule and don't stick with it, you set yourself up for failure. Instead, schedule study sessions that are a bit shorter and set yourself up for success! Make sure your study sessions are do-able. Studying is hard work, but after you pass, you can party and take a break!

Schedule breaks. Breaks are just as important as study time. Work out a rotation of studying and breaks that works for you.

Build up study time. If you find it hard to sit still and study for 1 hour straight through, build up to it. Start with 20 minutes, and then take a break. Once you get used to 20-minute study sessions, increase the time to 30 minutes. Gradually work your way up to 1 hour.

How to Make a Study Plan and Schedule

<https://www.test-preparation.ca/make-study-plan/>

40 minutes to 1 hour is optimal. Studying for longer than this is tiring and not productive. Studying for shorter isn't long enough to be productive.

Studying Math. Studying Math is different from studying other subjects because you use a different part of your brain. The best way to study math is to practice everyday. This will train your mind to think in a mathematical way. If you miss a day or days, the mathematical mind-set is gone, and you have to start all over again to build it up.

MORE INFO ON MAKING A STUDY PLAN

How to study math

<https://www.test-preparation.ca/study-math/>

How to Study

For more information, see our How to Study Guide at

<https://www.test-preparation.ca/learning-study/>

Flash Cards - The Complete Guide

<https://www.test-preparation.ca/flash-cards/>

GETTING THE MOST FROM PRACTICE QUESTIONS

Taking a practice test is probably the best way to prepare for a test.

Quick tips to get the most from practice questions:

Simulate Test Conditions

- Choose a quiet, distraction-free environment.
- Use a timer and allow just under 1 minute per question.
- Avoid using notes or online texts

Take it seriously -

- Treat the practice test as if it's the real exam -
- Familiarize yourself with the format and topics - this will reduce anxiety.

AFTER COMPLETING A PRACTICE TEST

Reviewing your work after you take a practice test is critical.

Immediate Review

- Make a note of any questions you found challenging or topics that felt unfamiliar or difficult.
- How was your time management?
- Overall comfort during the test?

Do a Thorough Review

- Go over your answers focusing on correct and incorrect answers.
- For incorrect answers, identify misunderstandings, knowledge gaps or problem subject areas - here is where you need to spend your study time.

Look for Patterns

- Look for recurring themes in your errors to pinpoint specific areas needing improvement.
- Assess whether mistakes were due to content gaps, misinterpretation of questions, or time constraints.

UNDERSTANDING SOCIETY: HISTORY & GEOGRAPHY



CHAPTER 2: Understanding Society: History & Geography

WELCOME TO SOCIAL STUDIES!

Don't let the name scare you. While "Social Studies" sounds like a heavy mix of history dates and politics, the CAEC test is actually much more approachable. Think of this section less as a history exam and more as a "Reading Comprehension Test for Real Life."

This chapter is designed to help you brush up on the general principles of Canadian history, geography, and civics, and—most importantly—teach you how to analyze the charts, maps, and political cartoons you'll see on test day.

What's in this Section? We've packed this chapter with a Self-Assessment and a Skill Tutorial.

- **The Tutorials:** These are quick, targeted lessons to refresh your memory on big concepts (like how the government works or how to read a map). They aren't a replacement for a full 4-year history degree, but they cover the "need-to-know" basics to get you exam-ready.

Social Studies Understanding Society

- **The Self-Assessment:** These practice questions are designed to test your current skills. They aren't identical to the real exam (nobody has those!), but they are built to mirror the *style* and *difficulty* of what you will face.

A Quick Tour of the CAEC Social Studies Test The official CAEC Social Studies section typically consists of 40 questions to be completed in 90 minutes. You won't just be answering "Who was the first Prime Minister?"

Instead, you will be tested on your ability to:

- Draw logical conclusions from a text.
- Identify the main idea in a historical document.
- Interpret visual data (graphs, maps, and political cartoons).
- Spot bias or the author's true intent in a news article.

Important Note on "The Questions" You might be wondering, "*Are these the exact questions I'll see on the test?*" The honest answer is: **No**. And you wouldn't want them to be! The CAEC changes constantly—new question formats, different time limits, and fresh topics appear all the time.

However, the *skills* never change. If you can analyze a political cartoon in this book, you can analyze one on the exam. If you can spot the bias in our practice articles, you'll be ready for whatever the CAEC throws at you.

Social Studies Self-Assessment

Before you dive into the deep end, let's see where you stand. This Self-Assessment is like a "pre-game warmup." It will help you:

Spot your blind spots (so you don't waste time studying what you already know).

Build your blueprint (using the Study Plan from Chapter 1).

Get comfortable with the "look and feel" of CAEC questions.

Establish a baseline score to track your improvement.

Instructions: This assessment has 40 questions.

- Since this is just a diagnostic tool, timing is optional. However, if you want to simulate test pressure, try to finish in about 60 minutes.
- Once you're done, check your answers and use the table below to grade yourself. Be honest—this is for your eyes only!

ANSWER SHEET

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	21	<input type="radio"/>								
2	<input type="radio"/>	22	<input type="radio"/>								
3	<input type="radio"/>	23	<input type="radio"/>								
4	<input type="radio"/>	24	<input type="radio"/>								
5	<input type="radio"/>	25	<input type="radio"/>								
6	<input type="radio"/>	26	<input type="radio"/>								
7	<input type="radio"/>	27	<input type="radio"/>								
8	<input type="radio"/>	28	<input type="radio"/>								
9	<input type="radio"/>	29	<input type="radio"/>								
10	<input type="radio"/>	30	<input type="radio"/>								
11	<input type="radio"/>	31	<input type="radio"/>								
12	<input type="radio"/>	32	<input type="radio"/>								
13	<input type="radio"/>	33	<input type="radio"/>								
14	<input type="radio"/>	34	<input type="radio"/>								
15	<input type="radio"/>	35	<input type="radio"/>								
16	<input type="radio"/>	36	<input type="radio"/>								
17	<input type="radio"/>	37	<input type="radio"/>								
18	<input type="radio"/>	38	<input type="radio"/>								
19	<input type="radio"/>	39	<input type="radio"/>								
20	<input type="radio"/>	40	<input type="radio"/>								

POLITICAL CARTOON QUIZ



1. Look at the object labeled “Tiny Measures” in the firefighter’s hand. What does this watering can most likely symbolize?

- a. The government’s plan to conserve water during a drought.
- b. The insufficiency and weakness of the current government’s solution to the housing crisis.
- c. The idea that small steps are the only way to solve big problems safely.
- d. A literal gardening tool used for home repairs.

2. Who does the Beaver most likely represent in this cartoon?

- a. The Canadian Wildlife Service protecting animals from the fire.
- b. A rival political party trying to take credit for the work.
- c. The average Canadian citizen or “The Public” demanding better results.
- d. A wealthy investor who is angry about his property burning.

3. How does the artist use Exaggeration to criticize the Prime Minister's actions?

- a. By drawing the Prime Minister as a firefighter, suggesting he is a hero saving the day.
- b. By contrasting the massive, raging fire with a pathetic trickle of water.
- c. By drawing the buildings taller than they would be in real life.
- d. By making the cloud labeled "Inflation" look friendly and harmless.

4. The man in the "Luxury Condos" building says: "Thanks for the tax breaks, Justin!" What is the irony in this statement?

- a. He is happy because the fire is keeping him warm.
- b. He is thanking the government for help, even though he is the one benefiting while the "Housing Crisis" home burns.
- c. He is genuinely thanking the firefighter for putting out the fire on his building.
- d. He is being sarcastic and actually hates the tax breaks.

5. What represents the external economic pressure making the situation worse?

- a. The hose labeled "Real Action."
- b. The dark cloud labeled "Inflation."
- c. The sign labeled "High Prices."
- d. The helmet labeled "Trudeau."

ANSWER KEY

1. B

The artist uses a tiny watering can (a tool for delicate flowers) to fight a massive house fire. This symbolizes that the government's response is far too weak ("tiny") to solve the huge problem.

2. C

The Beaver is a national symbol of Canada. In cartoons, when an animal symbol speaks to a politician, it usually represents the voice of the people/voters. The beaver is demanding "Real Action," representing the public's frustration.

3. B

Exaggeration is about distorting reality to make a point. A real firefighter wouldn't use a watering can. The artist exaggerates the smallness of the water to prove the uselessness of the policy.

4. B

The irony is that while the small house (Housing Crisis) is being destroyed, the rich investor is happy and profiting ("Tax breaks"). It critiques the government for helping the wrong people (investors) instead of those in crisis.

5. B

In cartoons, storm clouds often symbolize looming threats or bad weather "raining on the parade." Here, "Inflation" is hovering over everything, showing that rising costs are making the fire (the crisis) even harder to fight.

HOW TO READ A POLITICAL CARTOON

Political cartoons are not just funny pictures; they are visual arguments. The artist is trying to change your mind about a person or an event. To understand the joke (and get the right answer on the CAEC), you need to decode three specific tools: **Symbolism**, **Exaggeration**, and **The Caption**.

1. Symbolism: The “Shortcuts”

Cartoonists use symbols to represent big ideas or entire countries. If they had to write “The Government of Canada” every time, the cartoon would be boring. Instead, they draw a Beaver.

Common Symbols You Must Know:

- **Animals:**
 - **The Beaver:** Represents Canada or the Canadian people.
 - **The Bear:** Often represents Russia.
 - **The Eagle:** Represents the United States.
 - **The Dove:** Represents Peace.
 - **The Hawk:** Represents War or aggression.
- **Objects:**
 - **Chains:** Represent a loss of freedom or feeling trapped (e.g., by high taxes).
 - **Scales:** Represent Justice or the Law.
 - **A Ticking Clock:** Represents time running out or an approaching crisis.

Test Tip: If you see an object that doesn’t fit the scene (like a giant anchor tied to a runner’s leg), ask yourself: “*What idea does this object stand for?*” In this case, the anchor probably symbolizes “debt” or a “burden” holding the person back.

2. Exaggeration: The “Caricature”

Cartoonists distort physical features to make a point. This isn’t just to be mean; it’s to highlight a character trait or a political flaw.

- **Physical Features:** If a politician is drawn with a **giant mouth**, the artist is saying they talk too much (and maybe don’t listen enough). If they have **tiny eyes**, it might mean they are “blind” to a problem.
- **Size:** Important things are drawn **huge**. Unimportant (or powerless) things are drawn **tiny**.
 - *Example:* If a “Tax Bill” is drawn as a giant monster crushing a tiny “Taxpayer,” the artist is exaggerating the size to show how

overwhelming the tax feels to the average person.

3. The Caption: The “Twist”

The caption (or speech bubble) is usually the key to the satire. Often, the words will say one thing, but the picture will show the exact opposite. This is called **Irony**.

- **The “Lying” Caption:** The text might say, “Everything is under control!” while the picture shows a ship sinking.
 - *The Meaning:* The artist is criticizing the leader for being dishonest or out of touch with reality.
- **The Label:** Sometimes words are written directly on objects (like a bag of money labeled “Bribes”). Always read these labels first—they tell you exactly what the symbols mean.

Practice Strategy: The “I.S.E.” Method

When you see a cartoon on the test, don’t panic. Just look for **I.S.E.**

1. **Identify the Symbols** (Who is the Beaver? What is the clock?)
2. **Spot the Exaggeration** (What is too big? What is too small?)
3. **Explain the Irony** (Do the words match the picture, or do they contradict it?)

WELCOME TO DIGITAL LITERACY 101

In the old days, you had to trust the three major TV channels or the local newspaper. Today, your “news” comes from TikTok, your uncle’s Facebook rant, and maybe a legitimate website—all mixed together in one feed. The CAEC (and life in general) tests your ability to act as your own **editor**. You need to filter the junk from the facts. Here is your tutorial on how to be a “News Detective.”

PART 1: THE DIFFERENCE BETWEEN "FAKE" AND "BIASED"

First, we need to separate these two concepts. They are cousins, but they aren't the same.

- **Fake News (Misinformation/Disinformation):** This is **lies**. It is content created to deceive you, usually to make money (ad clicks) or cause chaos.
 - *Example:* "The Prime Minister has admitted he is an alien." (Never happened).
- **Bias:** This is **opinion**. The facts might be real, but they are presented from a specific *angle* to make you feel a certain way.
 - *Example:* "The Prime Minister's *bold* new plan" vs. "The Prime Minister's *risky* new scheme." (Both articles are about the same plan, but the words paint a different picture).

PART 2: THE "RED FLAGS" HOW TO SMELL A RAT

When you see a post or article, look for these warning signs before you share it or believe it.

1. The "Rage-Bait" Headline If the headline makes you incredibly angry or terrified immediately, **PAUSE**. Fake news is designed to hijack your emotions so you stop thinking.

- *Red Flag Words:* "SHOCKING," "YOU WON'T BELIEVE," "SECRET," "DESTROY."

2. The "Ghost" Author Legitimate news is written by real journalists who put their reputation on the line.

- *Check:* Is there a byline (a name)? If you click it, do they have a profile? If the article was written by "Admin" or "Patriot44," be suspicious.

3. The "Zombie" Photo Fake news often uses real photos from 10 years ago and claims they are happening *now*.

- *The Trap:* You see a photo of empty shelves and think there is a food shortage today. In reality, the photo is from a snowstorm in 2011.

PART 3: THE TOOLKIT HOW TO TEST IT

Okay, you're suspicious. Now, how do you prove it? Use the **SIFT Method**. It's a 4-step move used by professional fact-checkers.

S - Stop

When you feel that emotional reaction (anger, fear), **stop**. Do not share. Do not comment. Just pause.

I - Investigate the Source

Don't just read the "About Us" page (they can lie there). Open a new tab and Google the *name* of the website + the word "wikipedia" or "scam."

- *What you might find*: "The Daily Patriot is a satirical website..." (Boom, you're done. It's a joke site).

F - Find Better Coverage (Lateral Reading)

This is the single best trick. If a huge story is true (e.g., "Canada Bans Coffee"), **other reputable news outlets will be reporting it**.

- *The Test*: Google the topic. If the *only* place reporting it is TruthBomb.com and the CBC, CTV, and Global News are silent... it's almost certainly fake.

T - Trace Claims to the Original

If an article says, "Scientists say chocolate cures cancer," click the link to the study.

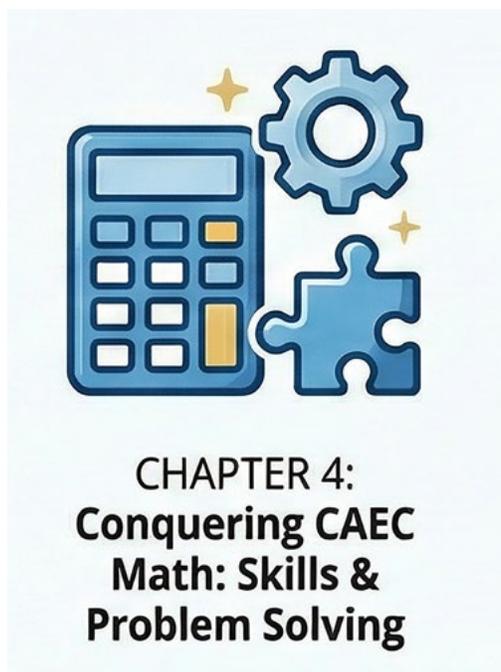
- *The Reality*: Usually, the study actually says, "A chemical in chocolate *might* help mouse cells in a petri dish." The news article exaggerated it. Always go to the source.

THE "CRAP" TEST

If you can't remember SIFT, just remember to check for **CRAP**:

- **Currency**: Is it too old? (Check the date!)
- **Reliability**: Is the source a real expert?
- **Authority**: Who wrote it?
- **Purpose**: Is this trying to inform me, or sell me something/make me angry?

MATHEMATICS



WELCOME TO THE CAEC MATH SECTION

First, take a deep breath.

If you are like many of our students, this is the section you have been dreading. But here is the truth: You do not need to be a math genius to pass this test. You just need to understand the general principles well enough to find the right answer.

This section includes a Self-Assessment to test your current skills, followed by Math Tutorials to help you brush up.

A Friendly Reminder: Think of the tutorials as a “refresher course” to dust off the cobwebs. We assume you have seen most of these numbers before—even if it was years ago! If you go through the tutorials and feel completely lost (or if you haven’t taken a math class in 20 years), don’t panic. It just means you might need to grab a basic math textbook or watch a few extra videos to build your foundation before coming back here.

TOUR OF THE CAEC MATH CONTENT

What is actually on the test? While the exam changes constantly, the concepts stay the same.

The CAEC covers a wide range of topics, but they generally fall into these buckets. If you can handle these, you are ready:

The Essentials: Solving word problems, calculating percents, ratios, and working with fractions.

Geometry: Simple geometry, coordinate geometry, Pythagorean theorem, and calculating area, perimeter, and volume.

Algebra: Linear equations, inequalities, quadratic equations, polynomials, binomials, and exponents.

Data: Basic statistics, probability, and data analysis.

The “Crystal Ball” Reality Check

The questions in this book are not identical to what you will see on the CAEC—that would be too easy! Plus, nobody knows exactly what questions will appear on your specific test day. The exam writers constantly change the numbers, the question styles, and even the time limits.

But here is the good news: The math doesn’t change. A fraction is always a fraction. If you can answer the questions in this self-assessment, you will have no problem with the reading section of the CAEC.

MATHEMATICS SELF-ASSESSMENT

Think of this Self-Assessment as a diagnostic engine check for your brain. It is almost the size of a full practice test!

Why take the time to do this?

Find your blind spots: Identify exactly which areas you own and which ones need work.

Build your plan: Use your score to create your Personalized Study Plan (from Chapter 1).

Get comfortable: Get used to the “flavor” of CAEC math questions so there are no surprises on test day.

Mathematics

Set a baseline: Establish your starting score so you can track your progress.

Instructions:

Timing: Since this is a self-assessment, timing is optional. If you are feeling anxious, take your time. If you want to simulate test pressure, try to move at a steady pace.

Remember: It is okay to make mistakes here. That is how you learn. You've got this!

ANSWER SHEET

	A	B	C	D	E		A	B	C	D	E
1	<input type="radio"/>	26	<input type="radio"/>								
2	<input type="radio"/>	27	<input type="radio"/>								
3	<input type="radio"/>	28	<input type="radio"/>								
4	<input type="radio"/>	29	<input type="radio"/>								
5	<input type="radio"/>	30	<input type="radio"/>								
6	<input type="radio"/>	31	<input type="radio"/>								
7	<input type="radio"/>	32	<input type="radio"/>								
8	<input type="radio"/>	33	<input type="radio"/>								
9	<input type="radio"/>	34	<input type="radio"/>								
10	<input type="radio"/>	35	<input type="radio"/>								
11	<input type="radio"/>	36	<input type="radio"/>								
12	<input type="radio"/>	37	<input type="radio"/>								
13	<input type="radio"/>	38	<input type="radio"/>								
14	<input type="radio"/>	39	<input type="radio"/>								
15	<input type="radio"/>	40	<input type="radio"/>								
16	<input type="radio"/>	41	<input type="radio"/>								
17	<input type="radio"/>	42	<input type="radio"/>								
18	<input type="radio"/>	43	<input type="radio"/>								
19	<input type="radio"/>	44	<input type="radio"/>								
20	<input type="radio"/>	45	<input type="radio"/>								
21	<input type="radio"/>	46	<input type="radio"/>								
22	<input type="radio"/>	47	<input type="radio"/>								
23	<input type="radio"/>	48	<input type="radio"/>								
24	<input type="radio"/>	49	<input type="radio"/>								
25	<input type="radio"/>	50	<input type="radio"/>								

LINEAR EQUATIONS

25. Solve the linear equation: $-x - 7 = -3x - 9$

- a. -1
- b. 0
- c. 1
- d. 2

26. Solve the system: $4x - y = 5$ $x + 2y = 8$

- a. (3,2)
- b. (3,3)
- c. (2,3)
- d. (2,2)

POLYNOMIALS

27. Add $-3x^2 + 2x + 6$ and $-x^2 - x - 1$.

- a. $-2x^2 + x + 5$
- b. $-4x^2 + x + 5$
- c. $-2x^2 + 3x + 5$
- d. $-4x^2 + 3x + 5$

28. Simplify the following expression:

$$3x^3 + 2x^2 + 5x - 7 + 4x^2 - 5x + 2 - 3x^3$$

- a. $6x^2 - 9$
- b. $6x^2 - 5$
- c. $6x^2 - 10x - 5$
- d. $6x^2 + 10x - 9$

Pass the CAEC!

ANSWER KEY

LINEAR EQUATIONS

25. A

We should collect similar terms on the same side. Here, we can collect x terms on left side, and the constants on the right side:

$-x - 7 = -3x - 9$ Let us add $3x$ to both sides:

$$-x - 7 + 3x = -3x - 9 + 3x$$

$2x - 7 = -9$... Now, we can add $+7$ to both sides:

$$2x - 7 + 7 = -9 + 7$$

$2x = -2$... Dividing both sides by 2 gives us the value of x :

$$x = -2/2$$

$$x = -1$$

26. C

First, we need to write two equations separately:

$$4x - y = 5 \text{ (I)}$$

$x + 2y = 8$ (II) ... Here, we can use two ways to solve the system. One is substitution method, the other one is linear elimination method:

Method 1 - Substitution Method

Equation (I) gives us that $y = 4x - 5$. We insert this value of y into equation (II):

$$x + 2(4x - 5) = 8$$

$$x + 8x - 10 = 8$$

$$9x - 10 = 8$$

$$9x = 18$$

$$x = 2$$

But knowing $x = 2$, we can find the value of y by inserting $x = 2$ into either of the equations. Let us choose equation (I):

$$4(2) - y = 5$$

$$8 - y = 5$$

$$8 - 5 = y$$

$$y = 3 \rightarrow \text{solution is } (2, 3)$$

Method 2 - Linear Elimination Method

2•/ $4x - y = 5$... by multiplying equation (I) by 2, we see that $-2y$ will form; and y terms

$x + 2y = 8$... will be eliminated when summed with $+2y$ in equation (II):

$$2\bullet/ 4x - y = 5$$

$$+ \quad \underline{x + 2y = 8}$$

$$8x - 2y = 10$$

$+ \quad \underline{x + 2y = 8}$... Summing side-by-side:

$8x + x - 2y + 2y = 10 + 8$... $-2y$ and $+2y$ cancel:

$$9x = 18$$

$$x = 2$$

By knowing $x = 2$, we can find the value of y by inserting $x = 2$ into either of the equations. Let us choose equation (I):

$$4(2) - y = 5$$

$$8 - y = 5$$

$$8 - 5 = y$$

$$y = 3 \rightarrow \text{solution is } (2, 3)$$

POLYNOMIALS

27. B

$$(-3x^2 + 2x + 6) + (-x^2 - x - 1)$$

$= -3x^2 + 2x + 6 - x^2 - x - 1$... we write similar terms together:

$= -3x^2 - x^2 + 2x - x + 6 - 1$... we operate within the same terms:

$$= -4x^2 + x + 5$$

28. B

$3x^3 + 2x^2 + 5x - 7 + 4x^2 - 5x + 2 - 3x^3$... we write similar terms together:

$= 3x^3 - 3x^3 + 2x^2 + 4x^2 + 5x - 5x - 7 + 2$... we operate within the same terms. $3x^3$ and $-3x^3$, $5x$ and $-5x$ cancel:

$$= 6x^2 - 5$$

Converting Percents to Decimals

Percents are just a type of decimal, so it should be no surprise that converting between the two is actually fairly simple. Here are a few tricks and Short-cuts to keep in mind:

- Remember that percent literally means “per 100” or “for every 100.” So when you speak of 30% you’re saying 30 for every 100 or the fraction $30/100$. In basic math, you learned that fractions that have 10 or 100 as the denominator can easily be turned to a decimal. $30/100$ is thirty hundredths, or expressed as a decimal, .30.
- Another way to look at it: To convert a percent to a decimal, simply divide the number by 100. So for instance, if the percent is 47%, divide 47 by 100. The result will be .47. Get rid of the % mark and you’re done.
- Remember that the easiest way of dividing by 100 is by moving your decimal two spots to the left.

Converting Percents to Fractions

Converting percents to fractions is easy. After all, a percent is just a type of fraction; it tells you what part of 100 that you’re talking about. Here are some simple ideas for making the conversion from a percent to a fraction:

- If the percent is a whole number -- say 34% -- then simply write a fraction with 100 as the denominator (the bottom number). Then put the percentage itself on top. So 34% becomes $34/100$.
- Now reduce as you would reduce any percent. Here, by dividing 2 into 34 and 2 into 100, you get $17/50$.
- If your percent is not a whole number -- say 3.4% --then convert it to a decimal expressed as hundredths. 3.4 is the same as 3.40 (or 3 and forty hundredths). Now ask yourself how you would express “three and forty hundredths” as a fraction. It would, of course, be $3\ 40/100$. Reduce this and it becomes $3\ 2/5$.

HOW TO ANSWER BASIC MATH MULTIPLE CHOICE

The time allowed on the math portion of a standardized test is typically so short that there’s no room for error. You have to be fast and accurate.

Math strategy is very helpful, but nothing beats knowing your stuff! Make sure that you have learned all the important formulas that will be used.

If you don’t know the formulas, strategy won’t help you.

How to Answer Basic Math Questions - the Basics

First, read the problem, but not the answers.

Work through the problem first and come up with your own answers. Hopefully, you should find your answer among the choices.

If no answer matches the one you got, re-check your math, but this time, use a different method. In math, there are different ways to solve a problem.

Math Multiple Choice Strategy

The two strategies for working with basic math multiple choice are Estimation and Elimination.

Estimation is just as it sounds - try to estimate an approximate answer first. Then look at the choices.

Elimination is probably the most powerful strategy for answering multiple choice. Eliminate obviously incorrect answers and narrowing the possible choices.

Here are a few basic math examples of how this works.

Solve $\frac{2}{3} + \frac{5}{12}$

- a. $\frac{9}{17}$
- b. $\frac{3}{11}$
- c. $\frac{7}{12}$
- d. $1 \frac{1}{12}$

First estimate the answer. $\frac{2}{3}$ is more than half and $\frac{5}{12}$ is about half, so the answer is going to be very close to 1.

Next, Eliminate. Choice A is about $\frac{1}{2}$ and can be eliminated, choice B is very small, less than $\frac{1}{2}$ and can be eliminated. Choice C is close to $\frac{1}{2}$ and can be eliminated. Leaving only choice D, which is just over 1.

Work through the solution, find a common denominator and add. The correct answer is $1 \frac{1}{12}$, so Choice D is correct.

Let's look at another example:

Solve $\frac{4}{5} - \frac{2}{3}$

- a. $\frac{2}{2}$
- b. $\frac{2}{13}$
- c. 1
- d. $\frac{2}{15}$

First, quickly estimate the answer. $\frac{4}{5}$ is very close to 1, and $\frac{2}{3}$ more than half, so the answer is going to be less than $\frac{1}{2}$.

Choice A can be eliminated right away, because it is 1. Choice C can be eliminated for the same reason.

Next, look at the denominators. Since 5 and 3 don't go into 13, choice B can be eliminated as well.

That leaves choice D. Checking the answer, the common denominator will be 15. So the answer is $\frac{2}{15}$ and choice D is correct.

HOW TO SOLVE WORD PROBLEMS

Do you know what the biggest tip for solving word problems is?

Practice regularly and systematically.

Sounds simple and easy right? Yes it is, and yes it really does work.

Word problems are a way of thinking and require you to translate a real-world problem into mathematical terms.

Some math teachers say that learning how to think mathematically is the main reason for teaching word problems.

So what does that mean?

Studying word problems and math in general requires a logical and mathematical frame of mind. The only way you can get this is by practicing regularly, which means every day.

It is critical that you practice word problems every day for the 5 days before the exam as the absolute minimum.

If you practice and miss a day, you have lost the mathematical frame of mind and the benefit of your previous practice is gone. You must start all over again.

Everything is important.

All the information given in the problem has some purpose. There is no unnecessary information! Word problems are typically around 50 words in 2 or 3 sentences.

Often, the relationships are complicated. To explain everything, every word counts.

Make sure that you use every piece of information.

9 STEPS TO SOLVING WORD PROBLEMS

Step 1 – Read through the problem at least three times. The first reading should be a quick scan, and the next two readings should be done slowly to find answers to these important questions:

What does the problem ask? (Usually located towards the end of the problem)

What does the problem imply? (This is usually **a point** you were asked to remember).

Mark all information, and underline all important words or phrases.

Mathematics

Step 2 – Try to make a pictorial representation of the problem such as a circle and an arrow to show travel. This makes the problem a bit more real and sensible to you.

A favorite word problem is something like, 1 train leaves Station A traveling at 100 km/hr and another train leaves Station B traveling at 60 km/hr. ...

Draw a line, the two stations, and the two trains at either end. This will help clarify the situation in your mind.

Step 3 – Use the information **you** have to make a table with a blank portion to show information you do not know.

Step 4 – Assign a single letter to represent each unknown data in your table. You can write down the unknown that each letter represents so that you do not make the error of assigning answers to the wrong unknown, because a word problem may have multiple unknowns and you will need to create equations for each unknown.

Step 5 – Translate the English terms in the word problem into a mathematical algebraic equation. Remember that the main problem with word problems is that they are not expressed in regular math equations. Your ability to identify correctly the variables and translate the word problem into an equation determines your ability to solve the problem.

Step 6 – Check the equation to see if it looks like regular equations that you have seen before, and whether it looks sensible. Does the equation appear to represent the information in the question? Take note that you may need to rewrite some formulas needed to solve the word problem equation. For example, word distance problems may need rewriting the distance formula, which is $\text{Distance} = \text{Time} \times \text{Rate}$. If the word problem requires that you solve for time you will need to use $\text{Distance}/\text{Rate}$ and $\text{Distance}/\text{Time}$ to solve for Rate. If you understand the distance word problem you should be able to identify the variable you need to solve for.

Step 7 – Use algebra rules to solve the derived equation. Take note that the laws of equation demands that what is done on this side of the equation has to also be done on the other side. You have to solve the equation so that the unknown ends up alone on one side. Where there are multiple unknowns you will need to use elimination or substitution methods to resolve all the equations.

Step 8 – Check your final answers to see if they make sense with the information given in the problem. For example if the word problem involves a discount, the final price should be less or if a product was taxed then the final answer has to cost more.

Step 9 – Cross check your answers by placing the answer or answers in the first equation to replace the unknown or unknowns. If your answer is correct then both side of the equation must equate or equal. If your answer is not correct then you may have derived a wrong equation or solved the equation wrongly. Repeat the necessary steps to correct.

TYPES OF WORD PROBLEMS

Word problems can be classified into 12 types. Below are examples of each type with a complete solution. Some types of word problems can be solved quickly using multiple choice strategies and some cannot. Always look for ways to estimate the answer and then eliminate choices.

1. Age

A girl is 10 years older than her brother. By next year, she will be twice the age of her brother. What are their ages now?

- a. 25, 15
- b. 19, 9
- c. 21, 11
- d. 29, 19

Solution: B

We will assume that the girl's age is "a" and her brother's age is "b." This means that based on the information in the first sentence,
 $a = 10 + b$

Next year, she will be twice her brother's age, which gives, $a + 1 = 2(b + 1)$

We need to solve for one unknown factor and then use the answer to solve for the other. To do this we substitute the value of "a" from the first equation into the second equation. This gives

$$\begin{aligned}10+b + 1 &= 2b + 2 \\11 + b &= 2b + 2 \\11 - 2 &= 2b - b \\b &= 9\end{aligned}$$

$9 = b$ this means that her brother is 9 years old. Solving for the girl's age in the first equation gives $a = 10 + 9$. $a = 19$ the girl is aged 19. So, the girl is aged 19 and the boy is 9

2. Distance or Speed

Two boats travel down a river towards the same destination, starting at the same time. One is traveling at 52 km/hr, and the other boat at 43 km/hr. How far apart will they be after 40 minutes?

- a. 46.67 km
- b. 19.23 km
- c. 6.4 km
- d. 14.39 km

Solution: C

After 40 minutes, the first boat will have traveled = $52 \text{ km/hr} \times 40 \text{ minutes} / 60 \text{ minutes} = 34.7 \text{ km}$

After 40 minutes, the second boat will have traveled = $43 \text{ km/hr} \times 40 / 60 \text{ minutes} = 28.66 \text{ km}$

Difference between the two boats will be $34.7 \text{ km} - 28.66 \text{ km} = 6.04 \text{ km}$.

Multiple Choice Strategy

First estimate the answer. The first boat is traveling 9 km. faster than the second, for 40 minutes, which is $2/3$ of an hour. $2/3$ of 9 = 6, as a rough guess of the distance apart.

Choices A, B and D can be eliminated right away.

3. Ratio

The instructions in a cookbook state that 700 grams of flour must be mixed in 100 ml of water, and 0.90 grams of salt added. A cook however has just 325 grams of flour. What is the quantity of water and salt that he should use?

- a. 0.41 grams and 46.4 ml
- b. 0.45 grams and 49.3 ml
- c. 0.39 grams and 39.8 ml
- d. 0.25 grams and 40.1 ml

Solution: A

The Cookbook states 700 grams of flour, but the cook only has 325. The first step is to determine the percentage of flour he has $325 / 700 \times 100 = 46.4\%$

That means that 46.4% of all other items must also be used.

46.4% of 100 = 46.4 ml of water

46.4% of 0.90 = 0.41 grams of salt.

Multiple Choice Strategy

The recipe calls for 700 grams of flour but the cook only has 325, which is just less than half, the quantity of water and salt are going to be about half.

Choices C and D can be eliminated right away. Choice B is very close so be careful. Looking closely at choice B, it is exactly half, and since 325 is slightly less than half of 700, it can't be correct.

Choice A is correct.

4. Percent

An agent received \$6,685 as his commission for selling a property. If his commission was 13% of the selling price, how much was the property?

- a. \$68,825
- b. \$121,850
- c. \$49,025
- d. \$51,423

Solution: D

Let's assume that the property price is x . That means from the information given, 13% of $x = 6,685$
Solve for x ,

$$x = 6685 \times 100 / 13 = \$51,423$$

Multiple Choice Strategy

The commission, 13%, is just over 10%, which is easier to work with. Round up \$6685 to \$6700, and multiply by 10 for an approximate answer. $10 \times 6700 = \$67,000$. You can do this in your head. Choice B is much too big and can be eliminated. Choice C is too small and can be eliminated. Choices A and D are left and good possibilities.

Do the calculations to make the final choice.

5. Sales & Profit

A store owner buys merchandise for \$21,045. He transports them for \$3,905 and pays his staff \$1,450 to stock the merchandise on his shelves. If he does not incur further costs, how much does he need to sell the items to make \$5,000 profit?

- a. \$32,500
- b. \$29,350
- c. \$32,400
- d. \$31,400

Solution: D

Total cost of the items is $\$21,045 + \$3,905 + \$1,450 = \$26,400$

Total cost is now $\$26,400 + \$5,000$ profit = \$31,400

Multiple Choice Strategy

Round off and add the numbers up in your head quickly.

$21,000 + 4,000 + 1500 = 26500$. Add in 5000 profit for a total of 31500.

Choice B is too small and can be eliminated. Choice C and Choice A are too large and can be eliminated.

6. Tax/Income

A woman earns \$42,000 per month and pays 5% tax on her monthly income. If the Government increases her monthly taxes by \$1,500, what is her income after tax?

- a. \$38,400
- b. \$36,050
- c. \$40,500
- d. \$39, 500

Solution: A

Initial tax on income was $5/100 \times 42,000 = \$2,100$

\$1,500 was added to the tax to give $\$2,100 + 1,500 = \$3,600$

Income after tax is $\$42,000 - \$3,600 = \$38,400$

7. Simple Interest Word Problems

Simple interest is one type of interest problems. There are always four variables of any simple interest equation. With simple interest, you would be given three of these variables and be asked to solve for one unknown variable. With more complex interest problems, you would have to solve for multiple variables.

Pass the CAEC!

The four variables of simple interest are:

P – Principal which refers to the original amount of money put in the account

I – Interest or the amount of money earned as interest

r – Rate or interest rate. This **MUST ALWAYS** be in decimal format and not in percentage

t – Time or the amount of time the money is kept in the account to earn interest

The formula for simple interest is $I = P \times r \times t$

Example 1

A customer deposits \$1,000 in a savings account with a bank that offers 2% interest. How much interest will be earned after 4 years?

For this problem, there are 3 variables as expected.

$$P = \$1,000$$

$$t = 4 \text{ years}$$

$$r = 2\%$$

$$I = ?$$

Before we can begin solving for I using the simple interest formula, we need to first convert the rate from percentage to decimal.

$$2\% = 2/100 = 0.02$$

Now we can use the formula: $I = P \times r \times t$

$$I = 1,000 \times 0.02 \times 4 = 80$$

This means that the \$1,000 would have earned an interest of \$80 after 4 years. The total in the account after 4 years will thus be principal + interest earned, or $1,000 + 80 = \$1,080$

Example 2

Sandra deposits \$1400 in a savings account with a bank at 5% interest. How long will she have to leave the money in the bank to earn \$420 as interest to buy a second-hand car?

In this example, the given information is:

$$I = \$420$$

$$P = \$1,400$$

$$r = 5\%$$

$$t = ?$$

As usual, first we convert the rate from percentage to decimal

$$5\% = 5/100 = 0.05$$

Next, we plug in the variables we know into the simple interest formula -

$$I = P \times r \times t$$

$$420 = 1,400 \times 0.05 \times t$$

$$420 = 70 \times t$$

$$420 = 70t$$

$$t = 420/70$$

$$t = 6$$

Sandra will have to leave her \$1,400 in the bank for 6 years to earn her an interest of \$420 at a rate of 5%.

Other important simple interest formula to remember are below. To use these formula, do not convert r (rate) to decimal.

$$P = 100 \times \text{interest} / r \times t$$

$$r = 100 \times \text{interest} / p \times t$$

$$t = 100 \times \text{interest} / p \times r$$

8. Averaging

The average weight of 10 books is 54 grams. 2 more books were added and the average weight became 55.4. If one of the 2 new books added weighed 62.8 g, what is the weight of the other?

- a. 44.7 g
- b. 67.4 g
- c. 62 g
- d. 52 g

Solution: C

Total weight of 10 books with average 54 grams will be
 $= 10 \times 54 = 540 \text{ g}$

Total weight of 12 books with average 55.4 will be
 $= 55.4 \times 12 = 664.8 \text{ g}$

Total weight of the remaining 2 will be
 $= 664.8 - 540 = 124.8 \text{ g}$

If one weighs 62.8, the weight of the other will be
 $= 124.8 \text{ g} - 62.8 \text{ g} = 62 \text{ g}$

Multiple Choice Strategy

Averaging problems can be estimated by looking at which direction the average goes. If additional items are added and the average goes up, the new items must be greater than the average. If the average goes down after new items are added,

the new items must be less than the average.

Here, the average is 54 grams and 2 books are added which increases the average to 55.4, so the new books must weight more than 54 grams.

Choices A and D can be eliminated right away.

9. Probability

A bag contains 15 marbles of various colors. If 3 marbles are white, 5 are red and the rest are black, what is the probability of randomly picking out a black marble from the bag?

- a. $7/15$
- b. $3/15$
- c. $1/5$
- d. $4/15$

Solution: A

Total marbles = 15

Number of black marbles = $15 - (3 + 5) = 7$

Probability of picking out a black marble = $7/15$

10. Two Variables

A company paid a total of \$2850 to book for 6 single rooms and 4 double rooms in an hotel for one night. Another company paid \$3185 to book for 13 single rooms for one night in the same hotel. What is the cost for single and double rooms in that hotel?

- a. single= \$250 and double = \$345
- b. single= \$254 and double = \$350
- c. single = \$245 and double = \$305
- d. single = \$245 and double = \$345

Solution: D

We can determine the price of single rooms from the information given of the second company. 13 single rooms = 3185.

One single room = $3185 / 13 = 245$

The first company paid for 6 single rooms at \$245. $245 \times 6 = \$1470$

Total amount paid for 4 double rooms by first company = $\$2850 - \$1470 = \$1380$

Cost per double room = $1380 / 4 = \$345$

11. Geometry

The length of a rectangle is 5 in. more than its width. The perimeter of the rectangle is 26 in. What is the width and length of the rectangle?

- a. width = 6 inches, Length = 9 inches
- b. width = 4 inches, Length = 9 inches
- c. width = 4 inches, Length = 5 inches
- d. width = 6 inches, Length = 11 inches

Solution: B

Formula for perimeter of a rectangle is $2(L + W)$

$$p = 26, \text{ so } 2(L + W) = p$$

The length is 5 inches more than the width, so

$$2(w + 5) + 2w = 26$$

$$2w + 10 + 2w = 26$$

$$2w + 2w = 26 - 10$$

$$4w = 16$$

$$W = 16/4 = 4 \text{ inches}$$

L is 5 inches more than w, so $L = 5 + 4 = 9$ inches.

12. Totals and fractions

A basket contains 125 oranges, mangoes and apples. If $3/5$ of the fruits in the basket are mangoes and only $2/5$ of the mangoes are ripe, how many ripe mangoes are there in the basket?

- a. 30
- b. 68
- c. 55
- d. 47

Solution: A

Number of mangoes in the basket is $3/5 \times 125 = 75$

Number of ripe mangoes = $2/5 \times 75 = 30$

WORD PROBLEM PRACTICE WITH VIDEO SOLUTIONS



[HTTPS://YOUTU.BE/6XWA6FO6ycE](https://youtu.be/6XWA6FO6ycE)

MOST COMMON WORD PROBLEM MISTAKES

Not reading the problem carefully and thoroughly, so that you either misunderstand or solve the problem incorrectly.

Not identifying the important information in the problem, such as the quantities, units, and the operation to be performed.

Not translating the information in the problem into mathematical language and equations.

Not checking the units of measure and making sure they match your final answer.

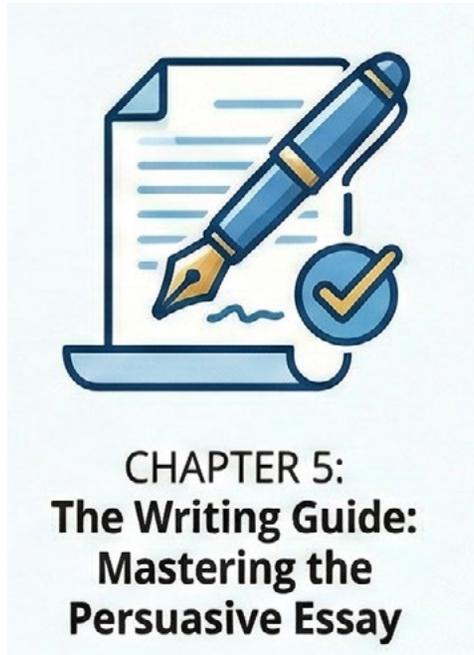
Not double-checking the answer to ensure it makes sense.

Not understanding the underlying mathematical concept or operation the problem is asking for.

Not using estimation or approximations as a tool to check the reasonableness of your answer.

THE WRITING GAME PLAN

YOUR GUIDE TO THE CAEC ESSAY



Let's talk about the Writing Section.

For a lot of people, this is the scariest part of the whole CAEC. With multiple-choice questions, you know the right answer is staring you in the face—you just have to pick it. But with writing? You have to pull the answer out of thin air!

But here is the secret: The CAEC writing test isn't looking for "art." They aren't expecting you to be the next Margaret Atwood or write a bestselling novel.

They are looking for structure.

Think of this essay like building a sandwich. If you have the bread, the meat, and the cheese in the right order, it's a sandwich. It doesn't have to be a gourmet meal; it just has to hold together. This chapter is going to give you the "recipe" to build that sandwich perfectly every single time.

THE GROUND RULES

Before we start cooking, here is what you are walking into:

The Time Limit: You have 75 minutes total. That is plenty of time to plan, write, and check your work—if you stay cool.

The Task: You will be asked to write one persuasive essay or letter.

The Topic: It will usually be a real-life situation, like a workplace issue or a community problem. You will be asked to pick a side (Agree or Disagree) and explain why.

The Grading: Unlike the math section, a real human being reads this. They are looking for three things:

Did you pick a side? (Don't be wishy-washy!)

Is it organized? (Does it have a clear beginning, middle, and end?)

Is it clean? (Is your grammar and spelling good enough to be understood?)

A QUICK REALITY CHECK

There are two things you need to know so you don't panic on test day:

The Spell Check Situation: Depending on the testing center, you usually get a basic dictionary tool, but you might not have the automatic “red squiggly line” spell check you are used to on your phone. You have to be your own editor!

The Waiting Game: Because a human has to read your essay, the scores for this section take longer to come back than the other sections—sometimes up to a month. So if your Math score pops up in two days but Writing is missing, don't worry. That is normal.

READY TO LEARN THE RECIPE? LET'S GET WRITING.

The Official Specs (The Hard Facts)

Time Limit: You have 75 minutes total.

The Task: You must write one persuasive essay or letter.

The Prompt: You will be given a specific topic (usually a community or workplace issue) and asked to write a response either supporting or opposing it.

The Writing Game Plan

Example: “The city is planning to replace the local park with a parking lot. Write a letter to the mayor arguing for or against this plan.”

Format: Computer-based (unless you have special permission for paper).

Tools Available: You generally have access to a basic Dictionary and Thesaurus tool built into the screen.

Warning: There is usually NO spell-check (the red squiggly lines). You have to catch your own typos!

SCORING: YOUR ESSAY IS GRADED ON THREE EQUAL PARTS:

Position & Support (33%): Did you pick a side and stick to it?

Voice & Presentation (33%): Do you sound professional and organized?

Grammar & Mechanics (33%): Spelling, punctuation, and sentence structure.

THE “INSIDER” SPECS WHAT THEY DON’T TELL YOU

While the official guide is vague, here is what successful students and instructors aim for:

1. The “Sweet Spot” Word Count There is no official minimum or maximum word count, but don’t let that fool you.

Too Short: Under 200 words makes it hard to develop your argument.

Too Long: Over 600 words increases the chance of grammar mistakes.

The Goal: Aim for 300 to 450 words. This is enough to show off your skills without rambling.

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2. The Structure (The “Cheeseburger” Method) Examiners love structure. Do not write one giant block of text. Use the 5-Paragraph Standard:

Paragraph 1 (Introduction): State your opinion clearly. (“I believe the park should be saved.”)

Paragraph 2 (Reason 1): First big reason why.

Paragraph 3 (Reason 2): Second big reason why.

Paragraph 4 (The Counter-Argument): Mention what the other side thinks, and politely explain why they are wrong. (“Some say we need parking, but...”)

Paragraph 5 (Conclusion): Wrap it up and restate your opinion.

3. FORMAT: LETTER VS. ESSAY BE READY FOR BOTH, BUT LETTERS ARE VERY COMMON ON THE CAEC.

If the prompt says “Write a letter,” make sure you include a greeting (“Dear City Council,”) and a sign-off (“Sincerely, [Your Name]”). If you forget these, you lose “Presentation” points immediately.

COMMON ESSAY MISTAKES - EXAMPLE 2

Questioning authority makes society stronger. In every aspect our society, there is an authoritative person or group making rules. There is also the group underneath them who are meant to follow. 1 This is true of our country's public schools as well as our federal government. The right to question authority at both of these levels is guaranteed by the United States Declaration of Independence. People are given the ability to question so that authority figures are kept in check 2 and will be forced to listen to the opinions of other people. Questioning authority leads to positive changes in society and preserves what is already working well.

If students never question the authority of a principal's decisions, the best interest of the student body is lost. Good things 3 may not remain in place for the students and no amendment to the rules are sought. Change requires that authority be questioned. An example of this is Silver Head Middle School in Davie, Florida. Last year, the principal felt strongly about enforcing the school's uniform policy. Some students were not bothered by this. 4 Many students felt the policy disregarded their civil rights. A petition voicing student dissatisfaction was signed and presented to the principal. He met with a student representative to discuss the petition. Compromise was reached as a monthly "casual day." The students were able to promote change and peace by questioning authority.

Even at the level of federal government, our country's ultimate authority, the ability to question is the key to the harmony keeping society strong. Most government officials are elected by the public so they have the right to question their authority. 5 If there's a mandate, law, or statement that citizens aren't 6 happy with, they have recourse. Campaigning for or against a political platform and participating in the electoral process give a voice to every opinion. I think elections are very important. 7 Without this questioning and examination of society's laws, the government will represent only the voice of the authority figure. The success of our society is based on the questioning of authority. 8

Society is strengthened by those who question authority. Dialogue is created between people with different visions and change becomes possible. At both the level of public school and of federal government, the positive effects of questioning authority can be witnessed. Whether questioning the decisions of a single principal or the motives of the federal government, it is the willingness of people to question and create change that allows society to grow. A strong society is inspired by many voices, all at different levels. 9 These voices keep society strong.

1. Write concisely. Combine the sentences to improve understanding and cut unnecessary words. Try: "In every aspect of society, there is an authority making rules and a group of people meant to follow them."

2. Avoid slang. Re-word "kept in check." Try: "People are given the ability to question so that authority figures are held accountable and will be forced to listen to the opinions of other people."

The Writing Game Plan

2-2. Cut unnecessary words. Try: “People are given the ability to question so that authority figures are held accountable and will listen to other opinions.”

3. Use precise language. What are “good things?” Try: “Interesting activities may not remain in place for the students and no amendment to the rules are sought.”

Use correct subject-verb agreement. Be careful to identify the correct subject of your sentence. Try: “Interesting activities may not remain in place for the students and no amendment to the rules is sought.”

4. Don’t add information that doesn’t add value to your argument. Cut: “Some students weren’t bothered by this.”

5. Check for parallel structure. Who has the right to question whose authority? Try: “Having voted them in, the people have the authority to question public officials.”

6. Don’t use contractions in academic essays. Try: “If there is a mandate, law, or statement that citizens are not happy with, they have recourse.”

7. Don’t use the pronoun “I” in persuasive essays. Cut opinions. Cut: “I think elections are very important.”

8. Use specific examples to prove your argument. Try: Discuss a particular election in depth.

9. Cut redundant sentences. Cut: “A strong society is inspired by many voices, all at different levels.”

EXAMPLE ESSAY PROMPTS

1. The 4-Day Work Week (Workplace)

Prompt: Your company is considering switching from a traditional 5-day work week (8 hours a day) to a 4-day work week (10 hours a day). The management is asking for employee feedback. Write a letter to the Human Resources director supporting or opposing this change.

Commentary: This is a classic “Pros vs. Cons” trap. Don’t try to argue both sides! If you support it, focus on “three-day weekends” and “lower commuting costs.” If you oppose it, focus on “exhaustion” and “childcare issues.” Pick one lane and drive in it.

2. The Downtown Parking Lot (Community)

Prompt: The city council is voting on a proposal to tear down a historic, but unused, theater downtown to build a large parking garage. Business owners argue the parking is needed for customers, but local historians want to preserve the building. Write an essay taking a stance on whether the theater

should be preserved or demolished.

Commentary: This tests your ability to weigh “progress” vs. “history.” The best essays here acknowledge the other side before shutting it down. For example: “While parking is definitely scarce downtown, destroying our heritage is a price too high to pay because...”

3. Cell Phones in Schools (Education)

Prompt: The local school board is debating a complete ban on cell phones on school property. Currently, students can have them but must keep them in their lockers. The new rule would forbid them entirely. Write a letter to the school board editor arguing for or against this complete ban.

Commentary: Everyone has an opinion on this! The trick here is to avoid being too emotional. Don’t just say “It’s unfair!” Instead, use logical arguments like “safety in emergencies” (against the ban) or “better focus in the classroom” (for the ban).

4. Mandatory Uniforms (Workplace)

Prompt: The retail store where you work is planning to introduce mandatory uniforms for all staff. Employees would have to pay for the uniforms themselves. Write a letter to the store manager explaining why you agree or disagree with this new policy.

Commentary: Watch out for the detail in the prompt: Employees have to pay for it themselves. That is a great hook for your argument! If you oppose it, focus on the financial burden. If you support it, focus on how professional it looks and how it stops customers from confusing staff with other shoppers.

5. Funding Public Transit vs. Roads (Civic)

Prompt: Your city has a budget surplus of \$1 million. One group wants to spend it on fixing potholes and expanding roads for drivers. Another group wants to spend it on buying new electric buses and expanding public transit. Write an essay arguing which option would benefit the community more.

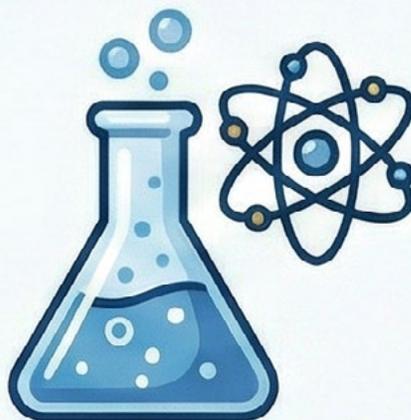
Commentary: This is a “Resource Allocation” prompt. You need to think about the community as a whole, not just yourself. A strong argument might look like: “Investing in buses helps low-income residents get to work, which boosts the whole city’s economy.”

6. Video Cameras in the Break Room (Workplace)

Prompt: To prevent theft, your employer wants to install security cameras in the employee break room and locker area. Many staff members feel this is an invasion of privacy. Write a letter to the company owner supporting or opposing the installation of these cameras.

Commentary: This is a “Security vs. Privacy” debate. It’s easy to get angry in this one, but keep it professional. If you are against it, talk about “trust” and “morale.” If you are for it, talk about “safety” and “protecting personal property.”

SCIENCE



CHAPTER 6: Science Simplified: Biology, Chemistry & Physics

Science Self-Assessment & Tutorials: Where Do You Stand?

Welcome to the Science section! Think of this chapter as your initial “health check-up” for your science knowledge.

We have packed this section with two things:

1. **Tutorials:** These are quick refreshers designed to dust off the cobwebs on general scientific principles.
2. **A Self-Assessment:** A set of 15 questions to see how well you can apply those principles.

A Quick Reality Check The tutorials below cover the “Big Ideas,” but they aren’t a complete 4-year high school science curriculum rolled into a few pages. We assume you have a little bit of background knowledge already.

- **Pro Tip:** If you are reading through the tutorials and it feels like a foreign language, or you find yourself totally lost, don’t panic! It just means you

Pass the CAEC!

Scenario 1: If Group A gets healthy and athletic, but Group B stays sluggish, congratulations! Your hypothesis was right. It was the vitamins!

Scenario 2: If nothing changes, or if the results are messy, you have to be honest. You have to go back to Step 1 and form a new hypothesis.

A Friendly Warning: The Human Trap

The Scientific Method is perfect, but humans are not.

The hardest part of science is accepting when you are wrong. Sometimes, we fall in love with our own hypothesis. If an experiment gives us an answer we don't like, it is very tempting to ignore it.

This actually happened in astronomy for nearly a thousand years! Early astronomers believed the Earth was the center of the universe and that planets moved in "perfect" circles. Why? Because they liked the idea of circles being perfect.

Even when their observations showed that planets actually move in ovals (ellipses) and go around the sun, they ignored the evidence because it didn't fit their favorite theory. It took until the 16th century for them to finally accept the truth.

The Lesson: Don't be like those old astronomers. Trust the method, follow the evidence, and don't be afraid to be wrong. That is how we learn!

CELL BIOLOGY: THE CITY INSIDE YOU

Welcome to the world of the tiny.

Cell Biology is exactly what it sounds like: the study of cells. But don't let the simple name fool you. Cells are the fundamental building blocks of life. Whether it is a single-celled bacteria or a complex human being (like you!) made of trillions of cells, the rules are surprisingly similar.

Studying cells is like looking under the hood of a car. If you know how the engine works, you can figure out how to fix it when it breaks. That is why cell biology is the foundation for everything else in medicine—from curing diseases to understanding how we grow.

Other cellular processes

Active and Passive transport - Movement of molecules into and out of cells.

Autophagy - The process whereby cells “eat” their own internal components or microbial invaders.

Adhesion - Holding together cells and tissues.

Reproduction - Made possible by the combination of sperm made in the testiculi (contained in some male cells' nuclei) and the egg made in the ovary (contained in the nucleus of a female cell). When the sperm breaks through the hard outer shell of the egg a new cell embryo is formed, which, in humans, grows to full size in 9 months.

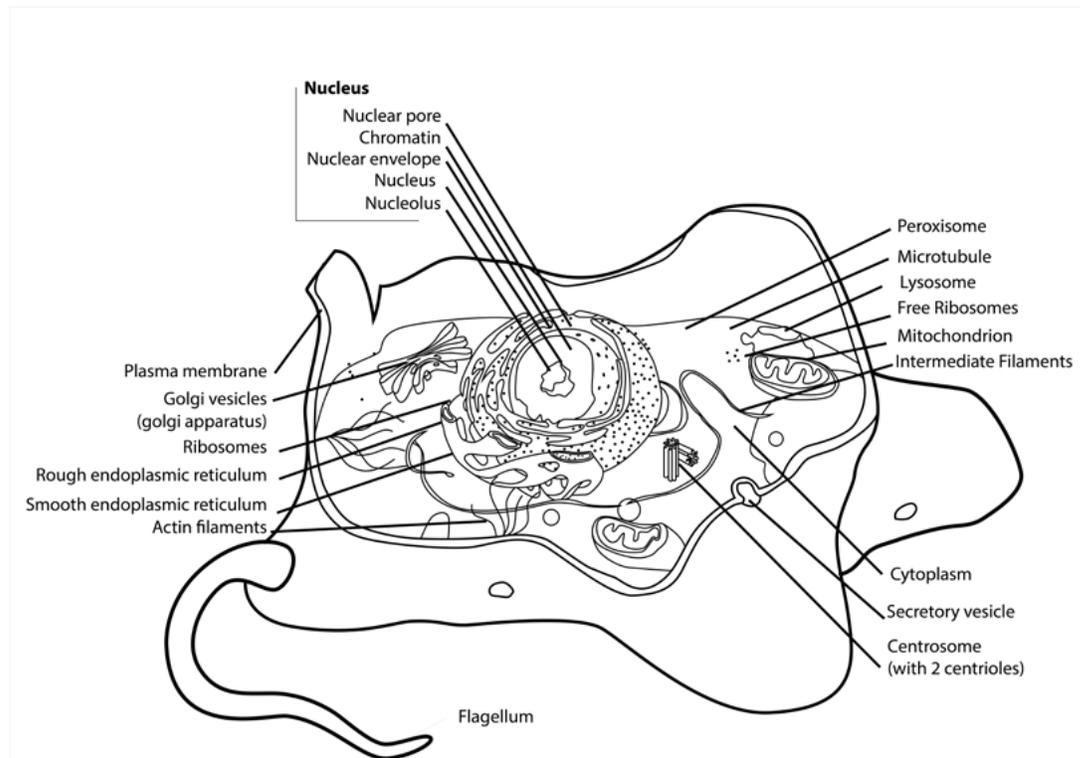
Cell movement - Chemotaxis, Contraction, cilia and flagella.

Cell signalling - Regulation of cell behavior by signals from outside.

DNA repair and Cell death

Metabolism - Glycolysis, respiration, Photosynthesis

Transcription and mRNA splicing - gene expression.



Internal cellular structures

Chloroplast - key organelle for photosynthesis (only found in plant cells)

Cilia - motile microtubule-containing structures of eukaryotes

Cytoplasm - contents of the main fluid-filled space inside cells

Cytoskeleton - protein filaments inside cells

Endoplasmic reticulum - major site of membrane protein synthesis

Flagella - motile structures of bacteria, archaea and eukaryotes

Golgi apparatus - site of protein glycosylation in the endomembrane system

Lipid bilayer - fundamental organizational structure of cell membranes

Lysosome - break down cellular waste products and debris into simple compounds (only found in animal cells)

Membrane lipid and protein barrier

Mitochondrion - major energy-producing organelle by releasing it as ATP

Nucleus - holds most of the DNA of eukaryotic cells and controls all cellular activities

Organelle - term used for major subcellular structures

Ribosome - RNA and protein complex required for protein synthesis in cells

Vesicle - small membrane-bounded spheres inside cells

The Cell is a Factory

To understand how a cell works, it helps to think of it as a busy, microscopic factory. It has walls, workers, managers, power plants, and a shipping department.

The main product this factory builds is Proteins.

Proteins do almost everything in your body. They digest your food, carry oxygen in your blood, and build your muscles. But they have to be built, packaged, and shipped to the right location.

Here is how the factory floor operates:

1. The Assembly Line: Ribosomes & The Rough ER

The actual workers that build the proteins are called Ribosomes.

Ribosomes use instructions from RNA to link amino acids together, like snapping Lego bricks together to build a specific shape. This process is formally called Protein Biosynthesis (or just “making proteins”).

Ribosomes often hang out on a structure called the Rough Endoplasmic Reticulum (or RER for short).

Think of the RER as the factory conveyor belt. It looks “rough” under a microscope because it is covered in those bumpy ribosomes.

As the ribosomes build the proteins, they push them directly into the RER to be transported.

MOCK EXAM 1



CHAPTER 7: Mock Exam 1: Assess Your Baseline

The Real Deal About These Questions

First things first: Are these the exact questions you will see on test day? No. That would be too easy, and frankly, nobody has a crystal ball because the test writers change the specific questions all the time.

However, these questions are built on the exact same foundation. They cover the same subjects, the same concepts, and the same difficulty level. Think of this like sports practice: we might not know exactly what play the other team will run, but if we practice the fundamentals, you'll be ready for anything. If you can handle the questions in this book, you are going to handle the CAEC just fine.

How to Get the Most Out of This Test

To really get your money's worth here, you need to treat this practice run like the real thing.

Find Your Zone: Go somewhere quiet. Turn off the TV, put your phone in another room, and tell the family you are "unavailable" for the next hour.

Practice Like You Play: Use the bubble answer sheets we provided. Getting used to filling in those little circles now means one less thing to stress about on exam day.

Stay Focused: Read every instruction and question carefully. Don't rush.

Pass the CAEC!

Check Your Work (and Learn!) Once you are done, check your answers against the Answer Key. But don't just count your score—read the explanations. That is where the real learning happens. If you got a question wrong, the explanation will tell you why, so you won't make that mistake again.

A Quick Warning: Don't Burn Out Please do not try to do all the practice tests in one day. Your brain is a muscle, and it needs rest to grow. After you finish this first test, give yourself a pat on the back and take a break. We recommend waiting two or three days before you tackle the next set.

Ready? Let's get started.

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MOCK EXAM 2



CHAPTER 8: Mock Exam 2: Test Your Readiness

Introduction to Practice Test 2: Round Two

Welcome Back! If you are reading this, it means you survived the first practice test and you are ready for more. Great job sticking with it.

A Quick Reminder on the Questions Just like with the first test, these questions are designed to mimic the style and content of the real CAEC, but they aren't the exact questions you'll see on exam day. (Remember: nobody knows those exact questions except the test-makers!). The goal here is consistency: if you can handle the curveballs in this practice test, the real CAEC won't catch you off guard.

Same Rules Apply You know the drill by now, but it bears repeating because it works:

Find Your "Exam Mode": Go to your quiet spot, shut the door, and turn off the phone. You want to train your brain to focus for long stretches.

Use the Bubble Sheet: We have included another bubble sheet for a reason. Keep practicing with it so filling in those circles feels like second nature.

Review, Review, Review: Once you put your pencil down, check the Answer Key. Pay special attention to the questions you got wrong—reading the explanations is how you turn a mistake today into a correct answer tomorrow.

Did You Take a Break? We mentioned this before, but it is crucial: If you just finished Practice Test 1 yesterday, put this book down. Your brain needs time to absorb what you learned in the first round. We recommend a 2-to-3-day gap between tests. If you have rested up and you're feeling fresh, then you are ready to go.

Turn the page and good luck!

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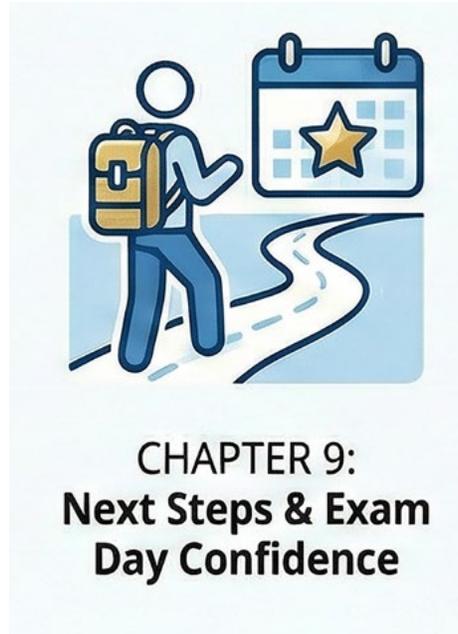
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CONCLUSION



Congratulations! You have made it to the end. By finishing this guide, you have shown the discipline and dedication required for a successful career.

Passing this test is the first step toward building a rewarding future. You have put in the work—now trust your preparation.

Study. Practice. Succeed. We are rooting for you!

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<https://www.test-preparation.ca/register/>

ONLINE RESOURCES



CHAPTER 10: Bonus: Online Prep & Video Library

How to Prepare for a Test - The Ultimate Guide

<https://www.test-preparation.ca/prepare-test/>

Learning Styles - The Complete Guide

<https://www.test-preparation.ca/learning-style/>

Test Anxiety Secrets!

<https://www.test-preparation.ca/test-anxiety/>

Time Management on a Test

<https://www.test-preparation.ca/time-management/>

Flash Cards - The Complete Guide

<https://www.test-preparation.ca/flash-cards/>

How to Memorize - The Complete Guide

<https://www.test-preparation.ca/memorize/>

