VERITAS PREP & TRINITY COLLEGE: Welcome

Your class includes:

12 lessons, 36 hours of Veritas Prep On Demand
Live Online Office Hours
E-books for all Veritas Prep lessons
7 full-length practice tests
Plenty of homework
VERITAS PREP & TRINITY COLLEGE: Welcome

Foundations of GMAT Logic

Arithmetic

Critical Reasoning

GMAT Overview

30 min
VERITAS PREP & TRINITY COLLEGE: Welcome

In-class goals:

Strong overview of each question type, with strategies
Emphasis on the most recurring/important concept areas

At home you should:

Build rusty/weak skills through Skillbuilder and On Demand
Cover topics not addressed in class
Go through all the “Lesson” problems as homework, continue homework as needed
Analytical Writing Assessment (30 minutes)
Integrated Reasoning (30 minutes)
Quantitative Reasoning (31 questions, 62 minutes)
Verbal Reasoning (36 questions, 65 minutes)

Select Your Order:

1) Verbal, break, Quant, break, IR, AWA
2) Quant, break, Verbal, break, IR, AWA
3) AWA, IR, break, Quant, break Verbal
VERITAS PREP & TRINITY COLLEGE: The GMAT

Quantitative Section
  Problem Solving
  Data Sufficiency

Verbal Section
  Sentence Correction
  Critical Reasoning
  Reading Comprehension
Adaptive Scoring:

Taken on computer
You cannot go back to previous problems
Pacing is crucial
Practice tests are important!
VERITAS PREP & TRINITY COLLEGE: Higher Order Thinking

Think Like the Testmaker

Skills Meet Strategy

Skillbuilder

Higher Order Thinking
VERITAS PREP & TRINITY COLLEGE: Syllabus

Today:
Intro (~1 hour)
Critical Reasoning (1.5 hrs) - p12

Break
Arithmetic (1.5 hrs) – p56
Reading Comprehension (1.5 hrs) – p80

Next Week:
Algebra (1.5 hours) – p108
Sentence Correction (1.5 hours) – p147
Break
Data Sufficiency (1.5 hours) – p177
Quant Strategy (~1 hour) – p202
VERITAS PREP & TRINITY COLLEGE: Where We Go From Here

• In class: the highlights and most efficient value-adds
• At home: the grind
  • Geometry
  • Word Problems
  • Skillbuilders
  • Where repetition is more important than strategy/familiarity

Today: verbal-heavy, Data Sufficiency intro
Next week: more math, Data Sufficiency gets interesting
In between: Skillbuilders (Algebra, Sentence Correction)
1/3 of the Verbal Section is “Critical Reasoning”

In two months, the legal minimum wage in the country of Kirlandia will increase from five Kirlandic dollars (KD5.00) per hour to KD5.50 per hour. Opponents of this increase have argued that the resulting rise in wages will drive the inflation rate up. In fact its impact on wages will probably be negligible, since only a very small proportion of all Kirlandic workers are currently receiving less than KD5.50 per hour.

Which of the following, if true, most seriously weakens the argument?

- Most people in Kirlandia who are currently earning the minimum wage have been employed at their current jobs for less than a year.
- Some firms in Kirlandia have paid workers considerably less than KD5.00 per hour, in violation of Kirlandic employment regulations.
- Many businesses hire trainees at or near the minimum wage but must reward trained workers by keeping their pay levels above the pay level of trainees.
- The greatest growth in Kirlandia's economy in recent years has been in those sectors where workers earn wages that tend to be much higher than the minimum wage.
- The current minimum wage is insufficient for a worker holding only one job to earn enough to support a family, even when working full time at that job.
GMAT CRITICAL REASONING: The Blueprint

Critical Reasoning questions fit into 4 categories:

**Strengthen**

**Weaken**

**Inference**

**Method of Reasoning**

Read the question stem first! Make sure you know your job before you begin.
GMAT CRITICAL REASONING: The Blueprint

Most CR questions ask you to Strengthen or Weaken a conclusion or strategy
Others ask you to draw a conclusion (and 4 of 5 are flawed)

The keys to CR: recognizing logical flaws and being critical
GMAT CRITICAL REASONING: Mind the Gap

Valid: All men are mortal
Socrates is a man
Therefore Socrates is mortal
GMAT/GRE CRITICAL REASONING: *Mind the Gap*

Valid: All men are mortal
      Socrates is a man
      Therefore Socrates is mortal

Invalid: All men are mortal
        Socrates is a dog
        Therefore Socrates is mortal
Invalid: All men are mortal
Socrates is a dog
Therefore Socrates is mortal

Why? Man ≠ Dog
GMAT/GRE CRITICAL REASONING: Mind the Gap

Invalid: The unemployment rate has dropped
Therefore, fewer people are unemployed.

Why?
Invalid: The unemployment rate has dropped 
Therefore, fewer people are unemployed.

Why? Unemployment rate ≠ number of people
Environmental groups are aggressively protesting the proposed use of a new technique for mining oil from the fringes of underground aquifers. These groups complain that such mining will lead to instances of contaminated groundwater and to sinkholes and other disasters in areas near the proposed mining. But, as the mining companies are quick to retort, the countries already using this technique have not reported any groundwater contamination or other environmental problems. Therefore, it is safe to proceed with the new technique.

Which of the following, if true, most undermines the conclusion above?

A. Some of the countries currently using the new technique have only been doing so for two years or less.

B. Other widely-used techniques used to procure oil have led to even worse contamination issues than what environmentalists predict could happen with the new technique.

C. The countries currently using the technique are so dependent on oil revenue that they are unlikely to report any problems that might require them to stop.

D. In the years that the new technique had been in use, several safeguards have been added to prevent the contamination of nearby water.

E. All of the aquifers near which the proposed technique would be employed are used or will soon be used to provide drinking water for their surrounding communities.
GMAT/GRE CRITICAL REASONING: *Mind the Gap*

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Reported ≠ Had
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GMAT/GRE CRITICAL REASONING: Mind the Gap

Precision in Language is key. Read critically, particularly if there are extra or “unique” words around the conclusion:

Company X will have to reduce its manufacturing costs.
The network’s overall profitability would be greater if it replaced this increasingly-expensive show.
It is thus surprising that raising contain more iron per calorie than do grapes.
About two million years ago, lava dammed up a river in western Asia and caused a small lake to form. The lake existed for about half a million years. Bones of an early human ancestor were recently found in the ancient lake-bottom sediments that lie on top of the layer of lava. Therefore, ancestors of modern humans lived in Western Asia between two million and one-and-a-half million years ago.

Which one of the following is an assumption required by the argument?

(A) There were not other lakes in the immediate area before the lava dammed up the river.

(B) The lake contained fish that the human ancestors could have used for food.

(C) The lava that lay under the lake-bottom sediments did not contain any human fossil remains.

(D) The lake was deep enough that a person could drown in it.

(E) The bones were already in the sediments by the time the lake disappeared.
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The Gap?

Bones were found ≠ Lived
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Paretan newspaper editor: David Salino assails as distorted our quotation of remarks on Paretan values by the Qinkoan prime minister and bemoans what he sees as the likely consequences for Paretan-Qinkoan relations. Those consequences will not be our fault, however, since officials at the Qinkoan embassy and scholars at the Institute of Qinkoan Studies have all confirmed that, as printed, our quotation was an acceptable translation of the prime minister’s remarks. No newspaper can fairly be blamed for the consequences of its reporting when that reporting is accurate.

Which one of the following is an assumption on which the editor’s argument depends?

(A) The confirmation that the translation is acceptable is sufficient to show that the prime minister’s remarks were accurately reported.

(B) Newspapers ought not to consider the consequences of their coverage in deciding what to report.

(C) If the newspaper’s rendering of the prime minister’s remarks was not distorted, then there is no reason to fear adverse consequences from reporting the remarks.

(D) If David Salino was prepared to praise the newspaper for any favorable consequences of quoting the prime minister’s remarks, he could then hold the newspaper to blame for adverse consequences.

(E) Only scholars or people with official standing are in a position to pass judgment on whether a translation of Qinkoan into Paretan is acceptable.
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Criminals released from prison on parole have generally been put under routine supervision. A recent program has allowed criminals to leave prison early under intensive supervision; they must obey curfews and in some cases they must be electronically monitored. The percentage of released criminals arrested while under supervision is the same for intensive supervision as for routine supervision, so intensive supervision is no more effective than routine supervision in preventing criminals from committing additional crimes.

Which one of the following is an assumption on which the argument relies?

(A) The criminals under intensive supervision, but not those under routine supervision, were required to work or attend school during their supervision period.

(B) All of the criminals who were arrested while under routine supervision had been in prison more than once before being paroled and put under supervision.

(C) The proportion of arrests to crimes committed was not significantly higher for criminals under intensive supervision than those under routine supervision.

(D) Of the criminals arrested while under intensive supervision, some would not have committed crimes if they had been under routine supervision.

(E) The number of criminals put under routine supervision was not significantly greater than the number of criminals put under intensive supervision.
GMAT/GRE CRITICAL REASONING: Mind the Gap

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The flaw? Arrested ≠ Crimes Committed

To fill in this argument, you need to link “Arrested” to “Crimes Committed”
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GMAT/GRE CRITICAL REASONING: Mind the Gap

Difficult Critical Reasoning questions aren’t much different from “Man vs. Dog”:

• They just hide the gap in a lot of text
• They use a smaller gap that many don’t notice
• They make the answer choices convoluted enough that you won’t find them helpful

Your strategy? Mind the Gap.
GMAT/GRE CRITICAL REASONING: Mind the Gap

Citizen: Each year since 1970, a new record has been set for the number of murders committed in this city. This fact points to the decreasing ability of our law enforcement system to prevent violent crime.

City Official: You overlook the fact that the city’s population has risen steadily since 1970. In fact, the number of murder victims per 100 people has actually fallen slightly in the city since 1970.

Which one of the following, if true, would most strongly counter the city official’s response?

(A) The incidence of fraud has greatly increased in the city since 1970.

(B) The rate of murders in the city since 1970 decreased according to the age group of the victim, decreasing more for younger victims.

(C) Murders and other violent crimes are more likely to be reported now than they were in 1970.

(D) The number of law enforcement officials in the city has increased at a rate judged by city law enforcement experts to be sufficient to serve the city’s increased population.

(E) If the health care received by assault victims last year had been of the same quality as it was in 1970, the murder rate in the city last year would have turned out to be several times what it actually was.
GMAT/GRE CRITICAL REASONING: *Mind the Gap*

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Murder ≠ Violent Crime
GMAT/GRE CRITICAL REASONING: Mind the Gap

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• They use a smaller gap that many don’t notice
• They make the answer choices convoluted enough that you won’t find them helpful

• When the premise doesn’t quite equal the conclusion, mind the gap.
• Beware precision in wording - the trap answer is often just one word off.
GMAT/GRE CRITICAL REASONING: Explain the Paradox

From 1998 to 2008, the amount of oil exported from the nation of Livonia increased by nearly 20% as the world’s demand soared. Yet over the same period, Livonia lost over 8,000 jobs in oil drilling and refinement, representing a 25% increase in the nation’s unemployment rate.

Which of the following, if true, would best explain the discrepancy outlined above?

A. Because of a slumping local economy, Livonia also lost 5,000 service jobs and 7,500 manufacturing jobs.
B. Several other countries in the region reported similar percentages of jobs lost in the oil industry over the same period.
C. Because of Livonia’s overvalued currency, most of the nation’s crude oil is now being refined after it has been exported.
D. Technological advancements in oil drilling techniques have allowed for a greater percentage of the world’s oil to be obtained from underneath the ocean floor.
E. Many former oil employees have found more lucrative work in the Livonia’s burgeoning precious metals mining industry.
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GMAT/GRE CRITICAL REASONING: Plan/Strategy

GMAT Trend: More questions with plans/strategies (instead of “arguments”)

In these questions:

- The objective/goal is the “conclusion”
- The plan/steps are the “premises”

The same rules apply – mind the gap and beware precision-in-language
Acid rain, caused by high levels of sulfur dioxide and mercury trapped in global air currents, affects one-third of China’s territory. Coal-fired power plants are notorious for emitting large quantities of these pollutants. To combat the problem, the Chinese national government has set aggressive environmental goals for the next five years. These goals include a 20 percent improvement in energy efficiency and a pledge that by the end of the 5 years, 10 percent of the nation’s energy will come from renewable resources such as hydroelectric or wind power.

Which of the following, if true, is the best criticism of the Chinese government’s strategy as a method for achieving a reduction in acid rain?

A. Some forms of air pollution, such as heavy particulate fumes, would not be affected by the suggested energy improvements.
B. Once the changes have been implemented, the actual reduction in acid rain would vary from region to region.
C. The goals would be forced on every region in China, including those that have no problems with acid rain.
D. Acid rain is also caused by other factors, such as volcanic eruptions or pollution from neighboring countries, over which China has no control.
E. Regional Chinese officials tend to ignore environmental regulations in order to meet aggressive economic requirements imposed on their regions’ industries.
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GMAT/GRE CRITICAL REASONING: Plan/Strategy

A “better plan” does not weaken this plan.

“I want to get a delicious, inexpensive meal so I’m going to go to Subway.”

-”Quiznos is better” does not weaken the plan!!!
-”After you go into a Subway you smell like Subway the rest of the day” does not weaken!
-”Subway’s bread tastes like cardboard” would weaken the plan
Numerous ancient Mayan cities have been discovered in the Yucatan peninsula in recent decades. The ruins lack any evidence of destruction by invading forces, internal revolts, or disease, and appear simply to have been abandoned. Some archaeologists have theorized that the cities were abandoned due to a severe drought known to have occurred in the region between 800 and 1000 A.D.

Which of the following, if true, most strongly supports the archaeologists' theory?

(A) Ample archaeological evidence of Mayan peasant revolts and city-state warfare exists, but such events could never result in the permanent abandonment of cities.

(B) No monumental inscriptions created after 900 A.D. have been found in these cities, but inscriptions dating before that time have been found in abundance.

(C) Studies of Yucatan lake sediment cores provide conclusive evidence that a prolonged drought occurred in the region from 800 to 1000 A.D.

(D) Climatic studies have documented cycles of intermittent drought in the Yucatan peninsula dating from the present to at least 7,000 years ago.

(E) The Mayan city, Uxmal, was continuously inhabited from 500-1550 A.D.
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Which of the following best completes the passage below:

In testing for food allergies, a false positive result occurs when a person is said to be allergic to a particular food when, in fact, they are not allergic to that food. A false negative result indicates that a person is not allergic to the food when, in fact, they are. To most accurately determine food allergies, a physician should use the test that gives the smallest percentage of false negative results because ______________________.

(A) Some food allergies cause reactions severe enough to be life-threatening.
(B) None of the tests for food allergies have lasting side effects.
(C) In diagnosing food allergies it is important to be as thorough as possible, since most people with one known food allergy have other undiscovered food allergies.
(D) The proportion of tests that do not provide a clear result is the same for all tests of food allergies.
(E) All tests for food allergies have the same proportion of false positive results.
Which of the following best completes the passage below:

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GMAT/GRE CRITICAL REASONING: Watch the Curveball

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Your mind wants: SAFETY FIRST!!!!!

The goal is: ACCURACY (and that’s it)
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(E) All tests for food allergies have the same proportion of false positive results.
Mind the Gap in arguments – the premise-conclusion connection is often just one word off (Man ≠ Dog)

With Plans/Strategies, the objective is the conclusion, and a better plan does not weaken this plan!

The Blueprint for beating *you* is misdirection:

- Be patient if the first few words are “out of scope” (watch the curveball)
- Beware your mental inertia (if the goal is accuracy, don’t worry about safety)
GMAT CRITICAL REASONING: MUST BE TRUE

If Shero wins the election, McGuinness will be appointed head of the planning commission. But Stauning is more qualified to head it since he is an architect who has been on the planning commission for fifteen years. Unless the polls are grossly inaccurate, Shero will win.

Which one of the following can be properly inferred from the information above?

(A) If the polls are grossly inaccurate, someone more qualified than McGuinness will be appointed head of the planning commission.

(B) McGuinness will be appointed head of the planning commission only if the polls are a good indication of how the election will turn out.

(C) Either Shero will win the election or Stauning will be appointed head of the planning commission.

(D) McGuinness is not an architect and has not been on the planning commission for fifteen years or more.

(E) If the polls are a good indication of how the election will turn out, someone less qualified than Stauning will be appointed head of the planning commission.
Among the one hundred most profitable companies in Europe, nearly half qualify as “socially responsible companies,” including seven of the top ten most profitable on that list. This designation means that these companies donate a significant portion of their revenues to charity; that they adhere to all relevant environmental and product safety standards; and that their hiring and employment policies encourage commitments to diversity, gender pay equality, and work-life balance.

Which of the following conclusions can be drawn based on the statements above?

(A) Socially responsible companies are, on average, more profitable than other companies.
(B) Consumers prefer to purchase products from socially responsible companies whenever possible.
(C) It is possible for any company to be both socially responsible and profitable.
(D) Companies do not have to be socially responsible in order to be profitable.
(E) Not all socially responsible companies are profitable.
GMAT ARITHMETIC: Introduction

Introduction

• You CANNOT use a calculator on the GMAT quant section
• The GMAT heavily tests factors, multiples, and divisibility
• Mental math and “number fluency” are critical to GMAT success (but lesser-used day to day)
GMAT ARITHMETIC: Prime Numbers

How many prime numbers exist between -10 and 10?

What is the smallest prime number?

What is the definition of a prime number?
GMAT ARITHMETIC: Prime Numbers

Are the following numbers prime or composite?

28  29  30  31  32  33  34  35  36  37
GMAT ARITHMETIC: Divisibility

A number is divisible by:

2 – If even
3 – If sum of digits divisible by 3
4 – If last 2 digits divisible by 4
5 – If last digit is a 5 or 0
6 – If even and sum of digits divisible by 3
9 – If sum of digits divisible by 9
10 – If last digit is 0
25 – If last 2 digits divisible by 25
GMAT ARITHMETIC: Divisibility

Drill: Is 21,865,014 divisible by:

3?
6?
9?
GMAT ARITHMETIC: Divisibility

How many prime numbers exist between 200 and 220?

(A) None
(B) One
(C) Two
(D) Three
(E) Four
GMAT ARITHMETIC: Factors/Multiples

How many unique factors does 20 have?
How many unique factors does 20 have?

Factors come in pairs:
1 and 20
2 and 10
4 and 5

→ 20 has six factors.

Challenge question: What does it mean if a number has an odd number of factors?
How many unique divisors does 222 have?

(A) 4
(B) 6
(C) 8
(D) 10
(E) Infinite
GMAT ARITHMETIC: Unique Factors Trick

1) Express the integer as a product of its prime factors, with each prime raised to its proper exponent. For example, $2^1*3^1*37^1$

2) Strip the exponents off of the bases and “discard” the bases. In the example, you would now have 1, 1, and 1

3) Add one to each exponent. (In the example, now you would have 2, 2, and 2)

4) Multiply those numbers, and that is the number of unique factors (here it’s $2*2*2 = 8$)
How many multiples of 3 exist between -10 and 10?

(A) 3
(B) 4
(C) 6
(D) 7
(E) 9
GMAT ARITHMETIC: *Multiples*

All multiples start at 0, which is a multiple of all numbers. \((0x = 0)\)

-9  -6  -3  0  3  6  9

From there, if you add or subtract \(x\) in either direction from 0, you will create multiples of \(x\).

Answer: There are 7 multiples of 3 between -10 and 10.
GMAT ARITHMETIC: Multiples

Is integer $y$ divisible by 168?

(1) $y$ is divisible by 42

(2) $y$ is divisible by 28

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

(D) EACH statement ALONE is sufficient to answer the question asked;

(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed.
GMAT ARITHMETIC: Multiples

Integer x represents the product of all integers between 1 and 25, inclusive. The smallest prime factor of (x + 1) must be:

(A) Between 1 and 10
(B) Between 11 and 15
(C) Between 15 and 20
(D) Between 20 and 25
(E) Greater than 25
GMAT ARITHMETIC: Number Properties

The GMAT tests a variety of “number properties”, including:

1) Units Digit
2) Even/Odd
3) Positive/Negative
4) “Create Your Own” (recognize patterns)
What is the value of $\sqrt{157,609}$?

(A) 323  
(B) 378  
(C) 392  
(D) 397  
(E) 403
GMAT ARITHMETIC: Number Properties

Addition/Subtraction

Odd +/- Odd = Even

Odd +/- Even = Odd

Even +/- Even = Even

Multiplication

Odd * Odd = Odd

Odd * Even = Even

Even * Even = Even
If \( n \) is a nonnegative integer, then \( n(n+1)(n+2) \) is

(A) Even only when \( n \) is even
(B) Even only when \( n \) is odd
(C) Odd whenever \( n \) is odd
(D) Divisible by 3 only when \( n \) is odd
(E) Divisible by 12 whenever \( n \) is even
Is \( x > 0? \)

(1) \( xy = 16 \)

(2) \( x + y = 10 \)

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

(D) EACH statement ALONE is sufficient to answer the question asked;

(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed
What is the tens digit of $11^{13}$?

(A) 1
(B) 2
(C) 3
(D) 4
(E) 5
GMAT ARITHMETIC: Number Fluency

What is 15% of 66?

What is 12% of 150?

What is 75 increased by 20%?
GMAT ARITHMETIC: Number Fluency

What is 12 * 13?

What is 19 * 35?

What is 112 ÷ 7?

What is 112 ÷ 14?
GMAT ARITHMETIC: Percents & Number Fluency

At the peak of the real estate market, an investor bought a parcel of land. In the year that immediately followed, the value of that land decreased by 20%. By what percentage will the land need to appreciate for the investor to break even?

(A) 15%
(B) 20%
(C) 25%
(D) 33%
(E) 50%
GMAT ARITHMETIC: Percents

In order to give his customers a 25 percent discount on the price and still net a 25 percent profit on the cost of an item, at what price should a merchant mark an item if it cost him $16.80?

(A) $21.00
(B) $21.90
(C) $25.20
(D) $26.25
(E) $28.00
READING COMPREHENSION: Introduction

Introduction

• You will see 3-4 passages
• Each passage will come with 3-6 questions
• Passages are up to 350 words in length
• Once you see a passage, you stay with it until you are done
A meteor stream is composed of dust particles that have been ejected from a parent comet at a variety of velocities. These particles follow the same orbit as the parent comet, but due to their differing velocities they slowly gain on or fall behind the disintegrating comet until a sheath of dust surrounds the entire cometary orbit. Astronomers have hypothesized that a meteor stream should broaden with time as the dust particles' individual orbits are perturbed by planetary gravitational fields. A recent computer-modelling experiment tested this hypothesis by tracking the influence of planetary gravitation over a projected 5,000-year period on the positions of a group of hypothetical dust particles. In this model, the particles were randomly distributed throughout a computer simulation of the orbit of an actual meteor stream, the Geminid. The researcher found, as expected, that the computer-model stream broadened with time. Conventional theories, however, predicted that the distribution of particles would be increasingly dense toward the center of a meteor stream. Surprisingly, the computer-model meteor stream gradually came to resemble a thick-walled, hollow pipe.

Whenever the Earth passes through a meteor stream, a meteor shower occurs. Moving at a little over 15,000,000 miles per day around its orbit, the Earth would take, on average, just over a day to cross the hollow, computer-model Geminid stream if the stream were 5,000 years old. Two brief periods of peak meteor activity during the shower would be observed, one as the Earth entered the thick-walled "pipe" and one as it exited. There is no reason why the Earth should always pass through the stream's exact center, so the time interval between the two bursts of activity would vary from one year to the next.

Has the predicted twin-peaked activity been observed for the actual yearly Geminid meteor shower? The Geminid data between 1970 and 1979 show just such a bifurcation, a secondary burst of meteor activity being clearly visible at an average of 19 hours (1,300,000 miles) after the first burst. The time intervals between the bursts suggest the actual Geminid stream is about 5,000 years old.

The author states that the research described in the first paragraph was undertaken in order to:

- determine the age of an actual meteor stream
- identify the various structural features of meteor streams
- explore the nature of a particularly interesting meteor stream
- test the hypothesis that meteor streams become broader as they age
- show that a computer model could help in explaining actual astronomical data
People struggle with Reading Comprehension because:

- They spend too much time
- They struggle to understand the passage
- They “zone out” and need to re-read

The STOP method is designed to combat all of the above.
READING COMPREHENSION: The STOP Method

• **Scope**

• **Tone**

• **Organization**

• **Purpose**

STOP at the end of each paragraph to check for understanding of Scope and Organization
READING COMPREHENSION: Organization

The biggest pitfall with Reading Comprehension:

• Students focus on the wrong details and get lost,

Or

• Students simply cannot engage with the passage and feel overwhelmed

Organization focuses on the “why”, not the “what”. Look for organizational language to build your understanding.
**READING COMPREHENSION:** Organization

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<td>While</td>
<td>Yet</td>
<td>Wrong</td>
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READING COMPREHENSION: The STOP Method

Nearly all the workers of the Lowell textile mills of Massachusetts were unmarried daughters from farm families. Some of the workers were as young as ten. Since many people in the 1820s were disturbed by the idea of working females, the company provided well-kept dormitories and boardinghouses. The meals were decent and church attendance was mandatory. Compared to other factories of the time, the Lowell mills were clean and safe, and there was even a journal, *The Lowell Offering*, which contained poems and other material written by the workers, and which became known beyond New England. Ironically, it was at the Lowell Mills that dissatisfaction with working conditions brought about the first organization of working women.

The mills were highly mechanized, and were in fact considered a model of efficiency by others in the textile industry. The work was difficult, however, and the high level of standardization made it tedious. When wages were cut, the workers organized the Factory Girls Association. 15,000 women decided to “turn out,” or walk off the job. The *Offering*, meant as a pleasant creative outlet, gave the women a voice that could be heard by sympathetic people elsewhere in the country, and even in Europe. However, the ability of the women to demand changes was severely circumscribed by an inability to go for long without wages with which to support themselves and help support their families. This same limitation hampered the effectiveness of the Lowell Female Labor Reform Association (LFLRA), organized in 1844.

No specific reform can be directly attributed to the Lowell workers, but their legacy is unquestionable. The LFLRA’s founder, Sarah Bagley, became a national figure, testifying before the Massachusetts House of Representatives. When the New England Labor Reform League was formed, three of the eight board members were women. Other mill workers took note of the Lowell strikes, and were successful in getting better pay, shorter hours, and safer working conditions. Even some existing child labor laws can be traced back to efforts first set in motion by the Lowell Mill women.
READING COMPREHENSION: The STOP Method

1)

2)

3)
READING COMPREHENSION: Question Types

Universal
Specific
Function
Inference
READING COMPREHENSION: Specific

According to the passage, which of the following contributed to the inability of the workers at Lowell to have their demands met?

(A) The very young age of some of the workers made political organization impractical.
(B) Social attitudes of the time pressured women into not making demands.
(C) The Lowell Female Labor Reform Association was not organized until 1844.
(D) Their families depended on the workers to send some of their wages home.
(E) The people who were most sympathetic to the workers lived outside of New England.
Paragraph 2:

The mills were highly mechanized, and were in fact considered a model of efficiency by others in the textile industry. The work was difficult, however, and the high level of standardization made it tedious. When wages were cut, the workers organized the Factory Girls Association. 15,000 women decided to “turn out,” or walk off the job. The Offering, meant as a pleasant creative outlet, gave the women a voice that could be heard by sympathetic people elsewhere in the country, and even in Europe. However, the ability of the women to demand changes was severely circumscribed by an inability to go for long without wages with which to support themselves and help support their families. This same limitation hampered the effectiveness of the Lowell Female Labor Reform Association (LFLRA), organized in 1844.
READING COMPREHENSION: *Inference*

The author of the passage implies that the efforts of the women workers at the Lowell Mills

(A) were of less direct benefit to them than to other workers.
(B) led to the creation of child labor laws that benefited the youngest workers at the Lowell Mills.
(C) forced the New England Labor Reform League to include three women on its board.
(D) were addressed in the poetry included in *The Offering*.
(E) were initially organized by Sarah Bagley.
The mills were highly mechanized, and were in fact considered a model of efficiency by others in the textile industry. The work was difficult, however, and the high level of standardization made it tedious. When wages were cut, the workers organized the Factory Girls Association. 15,000 women decided to “turn out,” or walk off the job. The Offering, meant as a pleasant creative outlet, gave the women a voice that could be heard by sympathetic people elsewhere in the country, and even in Europe. However, the ability of the women to demand changes was severely circumscribed by an inability to go for long without wages with which to support themselves and help support their families. This same limitation hampered the effectiveness of the Lowell Female Labor Reform Association (LFLRA), organized in 1844.

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READING COMPREHENSION: Function

The author uses the word “Ironically” in the 1st paragraph to indicate that

(A) none of the people who ran the Lowell Mills expected that the workers would organize to express dissatisfaction with working conditions.
(B) the women who worked at the Lowell Mills did not realize how fortunate they were to work at such a place.
(C) it could be considered surprising that an early effort to demand better working conditions began in an environment that was especially designed to promote worker satisfaction.
(D) the people who created the working environment for the women at the Lowell Mills did not really understand what it was they needed.
(E) it was unusual for women workers of the time to organize, regardless of their work environment.
Nearly all the workers of the Lowell textile mills of Massachusetts were unmarried daughters from farm families. Some of the workers were as young as ten. Since many people in the 1820s were disturbed by the idea of working females, the company provided well-kept dormitories and boardinghouses. The meals were decent and church attendance was mandatory. Compared to other factories of the time, the Lowell mills were clean and safe, and there was even a journal, *The Lowell Offering*, which contained poems and other material written by the workers, and which became known beyond New England. Ironically, it was at the Lowell Mills that dissatisfaction with working conditions brought about the first organization of working women.
READING COMPREHENSION: Universal

The primary purpose of the passage is to do which of the following?

(A) Describe the labor reforms that can be attributed to the workers at the Lowell mills
(B) Criticize the proprietors of the Lowell mills for their labor practices
(C) Suggest that the Lowell mills played a large role in the labor reform movement
(D) Describe the conditions under which the Lowell mills employees worked
(E) Analyze the business practices of early American factories
Until recently, *Ascaris azure*, known as the Diaz blueworm, and *Ascaris tropica*, known as the Costa Rican heatworm, were thought to be different species of roundworm. The heatworm is about 0.5 centimeters long, and lives within the bark of huge cecropia trees in Southeast Asian rain forests. The blueworm, barely visible with the naked eye, is found in frigid seafloors. Despite these apparent differences, The Institute of Helminthological Studies has officially stated that “both” species are actually Diaz blueworms.

Dr. Ginny Bolton, examining roundworm samples collected in Borneo, noticed that the heatworm’s tiny cilia (hairlike organelles) appeared to beat in a single direction, aiding in the expulsion of food. Dr. Bolton later determined that the cilia also made it much easier for the heatworm to live in the stifling confines of tree bark. The cilia project from a cuticle that is made of keratin, a protein that protects the worm’s epidermis from drying out and overheating. The cilia help regulate the proliferation of the keratin, and the force of the cilia’s movements varies as the external temperature changes, allowing for a highly responsive thermostatic system, constantly adjusting the amount of keratin so that the worm would be neither overexposed or stifled.

Knowing that the only other roundworm with directional cilia is the blueworm, Dr. Bolton consulted with several blueworm specialists. The thermostatic system that served the heatworm so well proved to be identical to the one used by oceangoing blueworm. However, the blueworm, which has been known to colonize methane ice mounds, uses the keratin to protect itself from frigid temperatures. The cilia sensed when the temperature was high enough to allow the production of keratin to slow down. Without the surrounding wall of keratin, the worm can more easily graze on bacteria.

Genetic testing showed that the blueworm and the heatworm were not merely structurally similar; to the scientists’ surprise, the worms were identical. This was startling, not only because of their vastly differing habitats, but also because of the difference in size. The answer again was to be found in the keratin, a tough substance that normally inhibits growth, keeping the hydrostatic pressure very high within the worm. The relatively large worm found in the rainforest molts as it grows, allowing the worm to increase its volume a very small amount each time it does, but the smaller worm cannot afford this much exposure. The freezing temperatures trigger the production of keratin so quickly that the worm has little chance to grow, thus keeping its volume approximately one-fourth that of the larger worm.
READING COMPREHENSION: Technical Passages

1) 

2) 

3) 

4)
Which of the following is the primary purpose of the passage?

(A) To present an overview of the function of keratin in roundworms
(B) To give an example of the kind of discoveries that are still being made in the natural sciences
(C) To show the ways in which scientists who are highly specialized need to work together
(D) To provide some of the details of a surprising scientific discovery
(E) To show how genetic testing is an invaluable scientific tool
According to the passage, in what way do the blueworm’s cilia aid the worm in coping with extreme heat and cold?

(A) They help with the removal of food from the worm’s system.

(B) They provide a mechanism by which the production of keratin can be regulated.

(C) They collect the bacteria on which some blueworms graze.

(D) They keep the hydrostatic pressure within the worm high.

(E) They keep it securely attached to the bark of the cecropia tree.
Knowing that the only other roundworm with directional cilia is the blueworm, Dr. Bolton consulted with several blueworm specialists. The thermostatic system that served the heatworm so well proved to be identical to the one used by oceangoing blueworm. However, the blueworm, which has been known to colonize methane ice mounds, uses the keratin to protect itself from frigid temperatures. The cilia sensed when the temperature was high enough to allow the production of keratin to slow down. Without the surrounding wall of keratin, the worm can more easily graze on bacteria.
It can be inferred from the passage that, compared to blueworms found in the sea, heatworms found in rainforests

(A) do not graze on bacteria.
(B) do not have high levels of hydrostatic pressure.
(C) cannot survive in water.
(D) have little chance to grow because of extreme temperature.
(E) replace keratin more slowly.
Genetic testing showed that the blueworm and the heatworm were not merely structurally similar; to the scientists’ surprise, the worms were identical. This was startling, not only because of their vastly differing habitats, but also because of the difference in size. The answer again was to be found in the keratin, a tough substance that normally inhibits growth, keeping the hydrostatic pressure very high within the worm. The relatively large worm found in the rainforest molts as it grows, allowing the worm to increase its volume a very small amount each time it does, but the smaller worm cannot afford this much exposure. The freezing temperatures trigger the production of keratin so quickly that the worm has little chance to grow, thus keeping its volume approximately one-fourth that of the larger worm.
It can be inferred from the passage that if the cilia of a blueworm found on the seafloor were to become damaged, preventing the sensing of warmer temperatures, the worm

(A) could grow to a length of 0.5 centimeter.
(B) would be in danger of freezing.
(C) might not be able to gain access to enough nourishment to sustain life.
(D) would be forced to find its way to warmer temperatures.
(E) would experience a sudden drop of hydrostatic pressure.
Knowing that the only other roundworm with directional cilia is the blueworm, Dr. Bolton consulted with several blueworm specialists. The thermostatic system that served the heatworm so well proved to be identical to the one used by oceangoing blueworm. However, the blueworm, which has been known to colonize methane ice mounds, uses the keratin to protect itself from frigid temperatures. The cilia sensed when the temperature was high enough to allow the production of keratin to slow down. Without the surrounding wall of keratin, the worm can more easily graze on bacteria.
According to the passage, researchers were able to make the discovery of the unlikely relationship between the two worms because of which of the following?

(A) Both worms have mechanisms to produce keratin.  
(B) Both worms exist in extreme temperatures.  
(C) Both worms are researched by the Institute of Helminthological Studies.  
(D) Both worms feature directional cilia.  
(E) Both worms molt as they grow.
Knowing that the only other roundworm with directional cilia is the blueworm, Dr. Bolton consulted with several blueworm specialists. The thermostatic system that served the heatworm so well proved to be identical to the one used by oceangoing blueworm. However, the blueworm, which has been known to colonize methane ice mounds, uses the keratin to protect itself from frigid temperatures. The cilia sensed when the temperature was high enough to allow the production of keratin to slow down. Without the surrounding wall of keratin, the worm can more easily graze on bacteria.
READING COMPREHENSION: Summary

“Follow the Theory”

Embrace technical language (you don’t need to know it)

Be question-driven (it’s only important if they ask about it)
Algebra
The Algebra Toolkit

Exponents (and Roots)

Difference of Squares

Inequalities
\[
\frac{5 + 5\sqrt{5}}{10 + \sqrt{500}} = \]

(A) \(\frac{1}{2}\)
(B) 2
(C) \(1 + \sqrt{5}\)
(D) \(1 + 5\sqrt{5}\)
(E) \(5 + \sqrt{5}\)
As you have seen with Arithmetic, the GMAT likes “messy” math that comes clean.

Algebra is about taking inconvenient math and making it convenient by:

• Solving for variables

• Making your math look like the answer choices
Typically used to find common denominators:

- $\frac{1}{2} + \frac{1}{4} \rightarrow$ multiply $\frac{1}{2}$ by $\frac{2}{2}$ to find a common denominator

- On the GMAT, your goal is to eliminate denominators
What is $\frac{a + \frac{2a}{3}}{\frac{5}{3}}$?
In the expression above, what is the value of $Y$ if $xm \neq 0$ and $m = \frac{1}{2}x$?

(A) 1
(B) $\frac{3}{2}$
(C) $\frac{5}{3}$
(D) 2
(E) 4
Summary

Multiplying by 1 is a good **first step** whenever:

- You are provided with an **expression**, not an equation
- Your problem includes a **multi-part denominator**
- Your problem includes **multiple** terms and denominators
To simplify algebraic expressions, you can also get like terms together:

\[3x + 4x = 7x\]

\[2x + 2y = 2(x + y)\]

This is particularly helpful when you need to **eliminate** terms or **match** your algebra to the algebra in an answer choice.
$4^8 + 4^8 + 4^8 + 4^8 = 4^x$. What is $x$?

(A) 4
(B) 8
(C) 9
(D) 16
(E) 32
What is $\sqrt{363} + \sqrt{147} + \sqrt{27}$?

(A) $6\sqrt{6}$
(B) $7\sqrt{6}$
(C) $11\sqrt{3}$
(D) $21\sqrt{3}$
(E) $30\sqrt{3}$
Factoring is a **crucial** skill on the GMAT.

What is the greatest prime factor of $12!11! + 11!10!$?

(A) 2  
(B) 7  
(C) 11  
(D) 19  
(E) 23
When to Factor:

- When you see addition/subtraction of roots, exponents, or factorials
- When you can remove a variable from multiple terms
- When you need to change the “mix” of terms so that you can divide/cancel
Do the Same to Both Sides

- You can Multiply By 1 and Combine Like Terms / Factor with expressions

- When you have equations, you can also do the same thing to both sides

  \[ 2x - 3 = 17 \]

  Is really just:

  \[ 17 = 17 \]

The equals sign means “is exactly the same as”
Do the Same to Both Sides

\[
\frac{12(x - 2) - 7x}{21} = 4 - \frac{x}{3}
\]
Eliminate Variables

When problems involve multiple variables, your job is often to eliminate variables to simplify.

As a general rule, one needs $n$ unique, linear equations to solve for $n$ variables.

In this section, you will learn two methods for eliminating variables:

• The Substitution Method
• The Elimination Method
Substitution Method

-3y = 5 - x
5x = 7y + 49

Elimination Method

x + y = 7
x - y = 1
In a weightlifting competition, the sum of Draymond’s two lifts was 750 pounds. If twice the weight of his first lift was 300 pounds more than the weight of his second lift, what was the weight, in pounds, of his first lift?

(A) 225
(B) 275
(C) 325
(D) 350
(E) 400
Section 2
Exponents (and Roots)
Guiding Principles for Exponents

1) Find common bases.

2) Multiply (which typically means “factor”).

3) Find patterns.
What is \((x)(x^a)(x^a)\)?

What is \((x^a)^b\)?

What is \(2^{(3)^2}\)?

What is \(2^3 2^{-5}\)?

What is \(3^0\)?

What is \(\frac{4^2 3^2}{12}\)?

If \(a\) and \(b\) are integers and \(3^a5^b=3^55^7\), can you solve for \(a\) and \(b\)?
If $(5^x)(4^{24}) = 2(10^{47})$, what is $x$?

A. 23  
B. 24  
C. 46  
D. 47  
E. 48
Multiply (which usually means Factor)

- Exponents are, by definition, multiplication problems.
- Exponents are repetitive multiplication: $2^5 = 2 \times 2 \times 2 \times 2 \times 2$
- Therefore – nearly all the rules you know deal with multiplication. You must turn exponent problems into multiplication problems, usually by factoring.
What is $3^8 + 3^7 - 3^6 - 3^5$?

(A) $(3^5)(2^4)$

(B) $(3^5)(2^6)$

(C) $(3^6)(2^5)$

(D) $6^5$

(E) None of the above
What is the units digit of $2^{39}$?

(A) 2
(B) 4
(C) 6
(D) 8
(E) 9
Exponents Summary:

1) Find Common Bases (usually means prime factorization)

2) Multiply

3) Find Patterns

Do not be intimidated by large numbers – that just goes with the territory.
If $2^x - 2^{-2} = 3(2^{17})$. What is the value of $x$?

(A)16
(B)17
(C)18
(D)19
(E)20
Exponents/Roots Summary

• Find common bases on exponent problems.

• If a problem involves addition or subtraction, use factoring or combining like terms to create multiplication.

• On difficult exponent problems, find patterns and extrapolate. Exponent problems are inherently pattern-driven.

• On problems involving abstraction or large numbers, use simple examples or numbers in order to reason out the proper approach.
The Difference of Squares rule:

\[(x + y)(x - y) = x^2 - y^2\]
1. What is $16x^2 - 1$?

2. What is $(5y + 2x)(5y - 2x)$?

3. What is $49y^2 - 9x^2$?

4. What is $\frac{25x^2 + 30xy + 9y^2}{25x^2 - 9y^2}$?
SECTION 4: COMMON ALGEBRAIC EQUATIONS

Difference of Squares Problem

999,999² − 1 =

(A) 10¹⁰ − 2
(B) (10⁶ − 2)²
(C) 10⁵(10⁶ − 2)
(D) 10⁶(10⁵ − 2)
(E) 10⁶(10⁶ − 2)
Section 4 Summary

• While in many cases you can simply derive these equations through FOIL or factoring, memorizing and looking for them comes with high ROI.

• Algebra is “an inconvenient truth” – the Common Algebraic Equations provide you with a quick tool to rephrase equations in more convenient forms.
SECTION 5: INEQUALITIES
Section 5: Introduction

Inequalities

What Good Test-Takers Know

What Better Test-Takers Know

What the Best Test-Takers Know
SECTION 5: INEQUALITIES

Definitions

\[ a > b \quad \text{a is greater than } b. \]
\[ a < b \quad \text{a is less than } b. \]
\[ a \geq b \quad \text{a is greater than or equal to } b. \]
\[ a \leq b \quad \text{a is less than or equal to } b. \]
Good Test-Takers Know

6 – 3(x + 1) > -12

Which must be true?

(A) $x > -5$
(B) $x < 5$
(C) $x^2 > 25$
(D) $x \neq 0$
(E) $-5 < x < 5$
Better Test-Takers can handle:

Is \( x > 3y \)?

(1) \( \frac{x}{y} > 3 \)

(2) \( y > 0 \)

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

(D) EACH statement ALONE is sufficient to answer the question asked;

(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed.
The Best Test-Takers Know

• As with multiple variables in equations, you can use the Elimination Method to isolate variables in inequalities.

• Make sure that the signs point in the same direction.
Is \( x - y > r - s \)?

(1) \( x > r \) and \( y < s \)

(2) \( y = 2, \ s = 3, \ r = 5, \) and, \( x = 6 \)

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;

(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

(D) EACH statement ALONE is sufficient to answer the question asked;

(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed
Inequalities Summary

Good, Better, Best:

**Good**: Flip the sign when multiplying/dividing by negative

**Better**: When multiplying/dividing by a variable, make sure you know the sign

**Best**: Combine inequalities to solve for ranges with multiple variables
While market-driven competition encourages pharmaceutical companies to actively seek innovative new drugs, market analysts note that marketing accounts for twice as much of the industry budget as research.

(A) marketing accounts for twice as much of the industry budget as research
(B) marketing accounts for twice as much of the industry budget as does research
(C) the industry budget is accounted for twice as much by marketing than research
(D) the industry budget is accounted for twice as much by marketing than by research
(E) marketing new drugs is twice as expensive compared to research
Introduction

Decision Points

MVP (a subset of IMPACTS)

Hiding the right answer / Selling the wrong answer
Are the following sentences correct or incorrect?

1. Although the term “psychopath” is popularly applied to an especially brutal criminal, in psychology it is someone who is apparently incapable of feeling compassion or the pangs of conscience.

2. Five fledgling sea eagles left their nests in western Scotland this summer, bringing to 34 the number of wild birds successfully raised since transplants from Norway began in 1975.
How about now?

1. Although the term “psychopath” is popularly applied to an especially brutal criminal, in psychology it is someone who is apparently incapable of feeling compassion or the pangs of conscience.

1. Although the term “psychopath” is popularly applied to an especially brutal criminal, in psychology it refers to someone who is apparently incapable of feeling compassion or the pangs of conscience.
How about now?

2. Five fledgling sea eagles left their nests in western Scotland this summer, bringing to 34 the number of wild birds successfully raised since transplants from Norway began in 1975.

2. Five fledgling sea eagles left their nests in western Scotland this summer, and brought to 34 the number of wild birds successfully raised since transplants from Norway began in 1975.
SENTENCE CORRECTION: Decision Points

1. Scan the answer choices for obvious differences and low-hanging fruit:
   • First and last words of each answer choice
   • Modifiers, Verbs, and Pronouns (MVP)

2. Read the sentence carefully

3. Eliminate incorrect answer choices ONLY when you know them to be incorrect
   • Beware of “False Decision Points” (misdirection & “selling the wrong answer”)


Immanuel Kant’s writings, while praised by many philosophers for their brilliance and consistency, are characterized by sentences so dense and convoluted as to pose a significant hurdle for many readers who study his works.

(A) so dense and convoluted as to pose
(B) so dense and convoluted they posed
(C) so dense and convoluted that they posed
(D) dense and convoluted enough that they posed
(E) dense and convoluted enough as they pose
Immanuel Kant's writings, while praised by many philosophers for their brilliance and consistency, are characterized by sentences so dense and convoluted as to pose a significant hurdle for many readers interested in his works.
SENTENCE CORRECTION: Think Like the Testmaker

Hide the Right Answer (behind a lesser-used but still correct structure)

Sell the Wrong Answer (by fixing what wasn’t broken – the “Corrupt Mechanic”)

→ Prioritize the decisions that you’re good at making

MVP – Modifiers, Verbs, Pronouns
SENTENCE CORRECTION: *MVP and IMPACTS*

In your books

**MVP**

Illogical Meaning

- **Modifiers**
- **Pronouns**
- **Agreement (of subject/verb)**
- **Comparisons**
- **Tense**
- **Sentence Construction**

Today let’s master the most common types; refer to your book for the comprehensive breakdown.
SENTENCE CORRECTION: Modifiers

Skillbuilder Review

Prepositional Phrases
Example: Bill usually drops any groceries he has brought home from his job on the kitchen table.

Participial Phrases
Example: Alarmed by the recent decline of the stock market, many retirement investments have been switched from stocks to more conservative options, such as money market funds.

Appositive Phrases
Example: A gifted student and talented musician, John’s family was proud of him.

Relative Clauses
Example: It rained yesterday, which forced me to cancel the event.
SENTENCE CORRECTION: Modifiers

Published since 1851, the founders of *The New York Times* were Henry Jarvis Raymond and George Jones, who had no previous journalism experience.

(A) Published since 1851, the founders of *The New York Times* were Henry Jarvis Raymond and George Jones, who had no previous journalism experience.

(B) Published since 1851, Henry Jarvis Raymond and George Jones, who had no previous journalism experience, were the founders of *The New York Times*.

(C) Published since 1851, *The New York Times* was founded by George Jones, who had no previous journalism experience, and Henry Jarvis Raymond.

(D) *The New York Times* was founded by Henry Jarvis Raymond and George Jones, who had no previous journalism experience, and published since 1851.

(E) The founders being Henry Jarvis Raymond and George Jones, who had no previous journalism experience, *The New York Times* has been published since 1851.
Skills Meet Strategy

When a sentence begins with an underlined portion touching a comma...

_____________________, fixed portion of the sentence

Fixed modifier, _________________

_____________________, _________________
The economic report released today by Congress and the Federal Reserve was bleaker than expected, which suggests that the nearing recession might be even deeper and more prolonged than even the most pessimistic analysts have predicted.

(A) which suggests that the nearing recession might be even deeper and more prolonged than even the most pessimistic analysts have predicted.

(B) which suggests that the nearing recession might be deeper and more prolonged than that predicted by even the most pessimistic analysts.

(C) suggests that the nearing recession might be even deeper and more prolonged than that predicted by even the most pessimistic analysts.

(D) suggesting that the nearing recession might be deeper and more prolonged than that predicted by even the most pessimistic analysts.

(E) a situation that is even more deep and prolonged than even the most pessimistic analysts have predicted.
Last year, engineers at a local software firm developed a new approach for dealing with increasingly troublesome cyber attacks, an advancement that has already reduced successful attacks by over 50%.

(A) an advancement that has already reduced successful attacks by over 50%.
(B) an advancement that had already reduced successful attacks by over 50%.
(C) and it is an advancement that reduced successful attacks by over 50%.
(D) and is an advancement that has already reduced successful attacks by over 50%.
(E) and an advancement that has already reduced successful attacks by over 50%.
SENTENCE CORRECTION: Modifiers

Use Modifiers as a primary decision point when:

- They’re in the beginning of a sentence
- They’re Relative Modifiers (which, who, where, when)

Look for a different decision point when:

- The modifier is at the end of a sentence
SENTENCE CORRECTION: Verbs

When you see multiple forms of the same verb:

Is vs. Are → Subject-Verb Agreement

Is vs. Was vs. Had Been → Tense/Timeline
SENTENCE CORRECTION: Verbs

Out of America's fascination with all things antique have grown a market for bygone styles of furniture and fixtures that are bringing back the chaise lounge, the overstuffed sofa, and the claw-footed bathtub.

(A) things antique have grown a market for bygone styles of furniture and fixtures that are bringing

(B) things antique has grown a market for bygone styles of furniture and fixtures that is bringing

(C) things that are antiques has grown a market for bygone styles of furniture and fixtures that bring

(D) antique things have grown a market for bygone styles of furniture and fixtures that are bringing

(E) antique things has grown a market for bygone styles of furniture and fixtures that bring
The quality of the new products that ACME Corporation have developed over the past year and that have recently arrived on retailers’ shelves worry many business analysts, who think that the company has lost focus under the new CEO’s leadership.

(A) The quality of the new products that ACME Corporation have developed over the past year and that have recently arrived on retailers’ shelves worry

(B) The quality of the new products that ACME Corporation has developed over the past year and that has recently arrived on retailers’ shelves worry

(C) The quality of the new products that ACME Corporation have developed over the past year and that has recently arrived on retailers’ shelves worry

(D) The quality of the new products that ACME Corporation has developed over the past year and that have recently arrived on retailers’ shelves worries

(E) The quality of the new products that ACME Corporation have developed over the past year and that have recently arrived on retailers’ shelves worries
The quality of the new products that ACME Corporation have developed over the past year and that have recently arrived on retailers’ shelves worry many business analysts, who think that the company has lost focus under the new CEO’s leadership.

1) Eliminate modifying phrases
2) Break off independent clauses
3) Ignore adjectives/adverbs
SENTENCE CORRECTION: Verbs

Some of the homes that were ruined and structurally compromised in the fire last year were built by the community’s earliest settlers.

(A) Some of the homes that were ruined and structurally compromised in the fire last year were

(B) Some of the homes that were ruined or structurally compromised in the fire last year had been

(C) Some of the homes that the fire ruined and structurally compromised last year have been

(D) Last year the fire ruined or structurally compromised some of the homes that have been

(E) Last year some of the homes that were ruined or structurally compromised in the fire had been
SEN TENCE CORRECTION: Verbs

Tense = Timeline

Look for words that signal time:

• Since
• Before/After
• From (X to Y)
• Last year
SENTENCE CORRECTION: Verbs

Past Perfect Tense:

“Had been” is used to put an event further back in time than another:

*Before I even started running, I had already swam and biked.*

Do not use Past Perfect when only Simple Past is required.
SENTENCE CORRECTION: Pronouns

Two types of Pronoun errors:

Singular vs. Plural

We hired a new finance director, and they are going to be fantastic.

Unclear Reference

The company manual specifically outlines rules for employees about contacting managers while they are out of the office on vacation or for personal reasons.
The dolphin, one of nature’s most intelligent animals, has been known to cover its snout with ocean sponges to better forage for food, in effect creating their own farming equipment.

(A) in effect creating their own farming equipment  
(B) so that it creates its own farming equipment  
(C) so that they create their own farming equipment  
(D) in effect creating its own farming equipment  
(E) creating effective farming equipment
Even today, lions can be seen ruling the African plains, hunting almost any animal that crosses its path and intimidating all but the most intrepid hunters.

(A) lions can be seen ruling the African plains
(B) lions are able to be seen ruling the African plains
(C) lions rule the African plains
(D) the lion rules the African plains
(E) the lion species rules the African plains
SENTENCE CORRECTION: Logical Meaning

Meaning Matters!

Do dolphins create farming equipment? Can a species cross someone’s path?
SENTENCE CORRECTION: Sentence Construction – Free Points

The success of the new office development will depend not only on the architect’s skill in executing his vision of an innovative design, but also the legal team’s ability to exercise their claim of eminent domain to secure the waterfront property.

(A) also the legal team’s ability to exercise their claim of eminent domain to secure the waterfront property

(B) also the legal team’s ability to exercise its claim of eminent domain in securing the waterfront property

(C) also on the legal team’s ability to exercise its claim of eminent domain to secure the waterfront property

(D) also on the legal team’s ability to exercise their claim of eminent domain in securing the waterfront property

(E) on also the legal team’s ability to exercise its claim of eminent domain to secure the waterfront property
SENTENCE CORRECTION: Sentence Construction – Free Points

With these structures:

Not only…but also
Both…and
Either…or
Neither…nor

Cover everything from the beginning of the first structure to the end of the second, and if what’s left isn’t a complete/valid sentence it’s wrong.
SENTENCE CORRECTION: Sentence Construction – Free Points

For homework:

Make sure to visit the Comparisons and Sentence Construction sections of the workbook/On Demand lessons.

Review the Skillbuilder drills for practice with core rules.

Do 50-100 Official Sentence Correction problems and think Decision Points / MVP; repetition and familiarity are hugely helpful on SC.
By what percent was the price of a certain candy bar increased?

(1) The price of the candy bar was increased by 5 cents.
(2) The price of the candy bar after the increase was 45 cents.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.
DATA SUFFICIENCY: Resource Management

Resource Management

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

**Do you NEED both statements?** Answer choices punish you for “buying” information you don’t need. **Manage resources wisely.**
What is the value of x?

(1) $3 < x < 5$
(2) $x^2 = 16$

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
(C) BOTH statements (1) and (2) TOGETHER are sufficient, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question;
(E) Statements (1) and (2) TOGETHER are NOT sufficient, and additional data are needed
x represents the number of children on a school bus. What is the value of x?

(1) 3 < x < 5
(2) \(x^2 = 16\)

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
(C) BOTH statements (1) and (2) TOGETHER are sufficient, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question;
(E) Statements (1) and (2) TOGETHER are NOT sufficient, and additional data are needed
DATA SUFFICIENCY: A game unto itself

The Two Wrong Answers:

1) You think you have enough information, but you actually don’t
   - Assumptions (positive, integer)
   - Using (part or all of) statement 1 when assessing statement 2 ALONE
   PLAY DEVIL’S ADVOCATE

2) You think you don’t have enough information, but you actually do
   - You need to leverage assets (“# of children = nonnegative integer”)
   LEVERAGE ASSETS
DATA SUFFICIENCY: Toolkit

1) Manipulate Algebraically
2) Use Conceptual Understanding
3) Play Devil’s Advocate and Pick Numbers
DATA SUFFICIENCY: Manipulate Algebraically

For integers a, b, and c, \( \frac{a}{b-c} = 1 \). What is the value of \( \frac{b-c}{b} \)?

(1) \( \frac{a}{b} = \frac{3}{5} \)
DATA SUFFICIENCY: Use Conceptual Understanding

Is integer $k$ a prime number?

(1) $k = 10! + m$, where $1 < m < 8$
DATA SUFFICIENCY: Pick Numbers / Play Devil’s Advocate

Is the product jkmn = 1?

(1) \( \frac{jk}{mn} = 1 \)
DATA SUFFICIENCY: *The Power of Structural Thinking*

D  Each statement alone is sufficient

A  B  Only one statement alone is sufficient

C  Neither statement alone is sufficient, but both together are

E  No combination of statements is sufficient

To “go up” the chart, **Leverage Assets**

To “go down” the chart, **Play Devil’s Advocate**

When one of these choices seems **easy**, look up or down a level.
DATA SUFFICIENCY: The Power of Structural Thinking

• Play Devil’s Advocate
• Leverage Assets
• Why Are You Here?
If arc XYZ above is a semicircle, what is its length?

(1) q = 2
(2) r = 8

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
(C) BOTH statements (1) and (2) TOGETHER are sufficient, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question;
(E) Statements (1) and (2) TOGETHER are NOT sufficient, and additional data are needed
(115) If arc XYZ above is a semicircle, what is its length?

1. $q = 2$
2. $r = 8$

Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked: 29
Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked: 60
Both statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient: 372
EACH statement ALONE is sufficient to answer the question asked: 304
Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed: 36
DATA SUFFICIENCY: The Power of Structural Thinking

What is the perimeter of isosceles triangle LMN?

(1) Side LM = 4
(2) Side LN = 4\sqrt{2}

(A) Statement (1) ALONE is sufficient, but statement (2) alone is insufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is insufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient
(D) EACH statement ALONE is sufficient
(E) Statements (1) and (2) TOGETHER are NOT sufficient
What is the perimeter of isosceles triangle LMN?

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(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient
(E) Statements (1) and (2) TOGETHER are NOT sufficient
DATA SUFFICIENCY: *Play Devil’s Advocate*

What is the perimeter of isosceles triangle LMN?

1. Side LM has a length of 4
2. Side MN has a length of $4\sqrt{5}$,

---

Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked

Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked

Both statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient

EACH statement ALONE is sufficient to answer the question asked

Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed

Total responses: 13764
Set J consists of the terms 2, 7, 12, 17, and a. Is \( a > 7 \)?

(1) \( a \) is the median of set J.
(2) Set J does not have a mode.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;
(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question asked;
(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed
DATA SUFFICIENCY: Why Are You Here?

Set J consists of terms {2, 7, 12, 17, a}. Is a > 7?

(1) a is the median of set J
(2) Set J does not have a mode

Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked

Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked

Both statements (1) and (2) TOGETHER are sufficient to answer the question asked; but NEITHER statement ALONE is sufficient

EACH statement ALONE is sufficient to answer the question asked

Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed

Total responses 402
DATA SUFFICIENCY: The Power of Structural Thinking

What is the value of integer z?

(1) z is the remainder when positive integer y is divided by positive integer (y – 1)
(2) y is not a prime number

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;
(C) BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question asked;
(E) Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data are needed
DATA SUFFICIENCY: *The Power of Structural Thinking*

What is the value of integer $z$?

1. $z$ is the remainder when positive integer $y$ is divided by positive integer $(y - 1)$
2. $y$ is not a prime number

Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked

Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked

Both statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient

EACH statement ALONE is sufficient to answer the question asked

Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed

Total responses 1167
DATA SUFFICIENCY: The Power of Structural Thinking

Line M is tangent to a circle, which is centered on point (3, 4). Does Line M run through point (6, 6)?

(1) Line M runs through point (-8, 6)

(2) Line M is tangent to the circle at point (3, 6)
If triangles ABC and CDE are each equilateral, what is the sum of the perimeters of the two triangles?

(1) Line segment AE measures 25 meters.

(2) Side BC is 2/3 as long as side DE.
If triangles ABC and CDE are each equilateral, what is the sum of the perimeters of the two triangles?

(1) Line segment AE measures 25 meters.  \(\rightarrow\) Sneaky sufficient statement

(2) Side BC is 2/3 as long as side DE.  \(\rightarrow\) Not sufficient ALONE; seals the deal TOGETHER
THINK LIKE THE TESTMAKER: Selling the Wrong Answer

If triangles ABC and CDE are each equilateral, what is the sum of the perimeters of the two triangles?

(1) Line segment AE measures 26 meters.

(2) Side BC is \( \frac{2}{3} \) as long as side DE.

Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked

Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked

Both statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient

EACH statement ALONE is sufficient to answer the question asked

Statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed

Total responses 6226

The W is for “Wharton”
DATA SUFFICIENCY: The Power of Structural Thinking

Julie is selling lemonades in two sizes, small and large. Small lemonades cost $0.52 and large lemonades cost $0.58. How many small lemonades did Julie sell?

(1) Julie sold a total of 9 lemonades.

(2) Julie’s total revenue from the sale of lemonades was $4.92

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient
(C) BOTH statements (1) and (2) TOGETHER are sufficient, but NEITHER statement ALONE is sufficient;
(D) EACH statement ALONE is sufficient to answer the question;
(E) Statements (1) and (2) TOGETHER are NOT sufficient, and additional data are needed
GMAT MATH: What Makes GMAT Math Difficult?

The Data Sufficiency Format
Timed Pressure

Abstraction
Large/Weird Numbers
Reverse Engineering
GMAT MATH: Pacing Pressure Leads To Silly Mistakes

“There are five more apples than bananas.”

What’s the equation?
Uncle Bruce is baking chocolate chip cookies. He has 36 ounces of dough (with no chocolate) and 15 ounces of chocolate. How much chocolate is left over if he uses all the dough but only wants the cookies to consist of 20% chocolate?

(A) 3  
(B) 6  
(C) 7.2  
(D) 7.8  
(E) 9
GMAT MATH: Pick Your Own Numbers

If a taxi driver charges $x$ cents for the first quarter-mile of a trip and $\frac{x}{5}$ cents for each additional quarter-mile, what is the charge, in cents, for a trip whose distance in miles is the integer $y$?

(A) $\frac{x+xy}{125}$

(B) $\frac{4x+4xy}{5}$

(C) $\frac{4x+xy}{500}$

(D) $\frac{4x+xy}{5}$

(E) $\frac{xy}{25}$
If the symbols $\Delta$ and $\Diamond$ each represent digits in the following subtraction operation, what is the value of $\Diamond$?

\[
\begin{array}{c}
\Delta\Diamond\Diamond \\
- \Delta\Delta \\
\hline
667
\end{array}
\]

(A) 3  
(B) 4  
(C) 5  
(D) 8  
(E) 9
GMAT MATH: Dealing With Abstraction

When integer $m$ is divided by integer $n$, the remainder is 14. If $\frac{m}{n} = 65.4$, what is the value of $n$?

(A) 14  
(B) 27  
(C) 35  
(D) 42  
(E) 45
GMAT MATH: Dealing With Abstraction

In the sequence $a_1, a_2, a_3...a_n$, each term $a_n$ is defined as $a_n = (-2)^n$. The sum of the first 9 terms of the sequence ($a_1, a_2, a_3...a_9$) must be ______________.

(A) Between -800 and -500
(B) Between -500 and -200
(C) Between -200 and 100
(D) Between 100 and 400
(E) Between 400 and 700
GMAT MATH: Answers Are Assets

In a certain store, the ratio of part-time workers to full-time workers is 2 to 5. If 4 part-time workers were hired, then the ratio would be 3 to 5. How many workers does the store have?

(A) 11  
(B) 12  
(C) 21  
(D) 28  
(E) 35
In $\triangle PQS$ above, if $PQ = 3$ and $PS = 4$, then $PR =$

A. $\frac{9}{4}$

B. $\frac{12}{5}$

C. $\frac{16}{5}$

D. $\frac{15}{4}$

E. $\frac{20}{3}$
GMAT MATH: *Put in the Work…*

The scope of GMAT math is wide. Make sure you cover:

- The Geometry lesson (emphasize triangles and circles, particularly)
- The Word Problems lesson (Rates, Organizing Info, Min/Max, Weighted Average)
- Statistics & Combinatorics (for those hoping for 600+)
ABOUT THE GMAT: Study Strategy

Practice Tests – the last 1/3 of your study cycle. Learn/Practice first.

Master what you can, then expand your scope.

Match the correct answer with the problem (before you read a solution).

Don’t mistake activity for achievement.
ABOUT THE GMAT: *Test Day Strategy*

Strategically Guess (you get 3-4 “free passes”)

Don’t Be Stubborn

Experimental Problems & Difficulty Levels

-Ask me for the secret I can’t put in writing!

Be careful – no talking or study aids during break (they’re intense)