# GMAT QUANT & VERBAL CONTENT & TACTICAL SUMMARY

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| Section | Question Type | Category | |
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| Q & V | PS/DS/RC/SC/CR | SUMMARY | **NOTE**: This packet is to be used in conjunction with the Modules in your EMPOWERgmat Course. This packet is NOT designed to be a complete treatment of any subject herein. |

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# TEST IT

**The most powerful EMPOWER tactic for the Quantitative section of the GMAT**

## WHY use TEST IT:

1. On many questions, it's an easier/faster approach than conventional math
2. It's useful on up to 2/3 of Test Day Quant Questions
3. It's useful on most Data Sufficiency Questions
4. You cannot earn a 700+ without TEST IT

## CLUES that you can likely use TEST IT on a question:

1. When there are one or more variables in the answers
2. When there are one or more variables in the prompt
3. When math vocabulary words (odd, even, positive, prime, etc) appear in a question
4. You're on a Data Sufficiency question
5. If you're not sure how to begin a question

## HOW to use TEST IT:

1. Look for VARIABLES (in the prompt and/or the answers)
2. Identify any math rules or definitions about the variables
3. Select easy-to-use numbers for your variables
4. Perform any necessary calculations that the question asks you to perform
5. Compare your result with the answers and find a match (when variables occur in the answers, then you must check ALL 5 answers)

**Example**:
If $N > 4$ and N is a prime number, then what is the remainder when $N^2$ is divided by 6?

(A) 0
(B) 1
(C) 2
(D) 3
(E) 4

## WHAT number(s) to pick:

1. In Problem Solving questions, small integers tend to be best (2, 3, 4, 5, 6, etc.); avoid the numbers 0 and 1 except in complex questions
2. In Data Sufficiency questions, ANY numbers are permissible, as long as the question doesn't restrict it (look to use 0 and 1 in these situations)
3. Use 100 when a % symbol appears (or percents are referenced)
4. Use the common denominator when a question lists fractions in the prompt
5. Use numbers that match any descriptions given (odd, negative, prime, etc.)

# TEST THE ANSWERS

**A Variation of Test It**

## WHY use TEST THE ANSWERS:

1. It's useful on 3 – 4 Test Day questions
2. It's SIGNIFICANTLY FASTER than the conventional math approach
3. It's easy to prove what the correct answer is

## CLUES that you can use TEST THE ANSWERS (all 3 MUST occur for you to use this tactic):

1. The 5 answers are numbers
2. The prompt contains at least 1 fixed value/number
3. You are asked to solve for 1 variable

## HOW to use TEST THE ANSWERS:

1. Confirm that all 3 clues (above) occur in the question/answers
2. Start with answer B or D
3. Do the necessary calculations that the question requires
4. If your answer matches everything in the question, then you're done. If it doesn't match, use your result to figure out if your answer is "too big" or "too small". Test additional answers as needed

**Example**:
A 50 inch long piece of paper is cut into two pieces. One piece is 14 inches longer than the other. What is the length, in inches of the longer piece?

(A) 14
(B) 18
(C) 25
(D) 32
(E) 36

## Special situations for TEST THE ANSWERS:

1. If the question asks for the "largest" or "smallest" answer, then begin by TESTING THE ANSWER that is largest or smallest and working through the list until you find the correct answer.

2. If you're not sure whether to test a larger or smaller answer, then testing BOTH B and D should help you to establish the pattern behind the question. With those 2 results, even if you don't have the correct answer, you should be able to determine whether the results are going "up" or "down" and pick the correct answer from the remaining 3 choices (A, C and E).

# DATA SUFFICIENCY

**Approximately 40% of the Quantitative Section**

## WHY learn DATA SUFFICIENCY:

1. Approximately 15 DS questions on Test Day
2. Differences in the DS types (Value vs. Yes/No) require slight variations in how you do the work
3. DS questions are often based on math and logic patterns. Knowing those patterns (and learning how to deduce them) will make the Quant section easier
4. It meshes easily with your TEST IT knowledge (in DS questions, you have to test more than 1 possibility though)

## The 5 DS answer choices:

1. Fact 1 is Sufficient, Fact 2 is Not
2. Fact 2 is Sufficient, Fact 1 is Not
3. Both Facts NOT, Together Sufficient
4. Both Facts Sufficient
5. Both Facts NOT, Together NOT

## The EMPOWER Method for DS:

1. What is the question asking for?
2. What information were you given in the prompt?
3. Use the new information in Fact 1 to answer the question (prove if the answers change or stay the same, either with TEST IT or math)
4. Eliminate answers
5. Use the new information in Fact 2 to answer the question (prove if the answers change or stay the same, either with TEST IT or math)
6. Combine Facts, ONLY IF they're BOTH insufficient

# PROBLEM SOLVING

**Approximately 60% of the Quantitative Section**

## Problem Solving Tactics

1. Test It of Test The Answers: up to 2/3 or all PS questions

2. Do the math: roughly 1/3 of PS questions

3. Triage:
    1. Question is too hard
    2. You're stuck, or the question could likely take too long
    3. You're out of time

# QUANT TRIAGE

**A ground-breaking EMPOWER tactic that will help you to crush the quant section by quickly moving past the questions that don't matter. It's also helpful in aiding you to take an educated guess on any question that you're "stuck" on.**

## WHY use TRIAGE:

1. To get past the hardest questions on the GMAT in a quick and efficient manner (and since these questions DON'T MATTER to your score, the faster you get past them, the better)
2. To keep you on pace to finish the entire test and answer ALL of the questions (there will be some easy questions at the end of the section, they DO MATTER, and if you want a 700+, you must get to these questions and answer them correctly)
3. To remove the natural stresses that will occur on Test Day by keeping you from getting bogged down by the hard/ weird questions that have little to no impact on your score

## REASONS to TRIAGE a question:

1. It's really hard (and thus, it doesn't matter)
2. You've spent 2-3 minutes on a question and you can't seem to get to the answer
3. You're out of time and forced to guess
4. You're an EMPOWER-TRAINED GMAT ASSASSIN and you know which questions don't matter, so you simply dump them and move on to the questions that DO matter

## TYPES of TRIAGE:

1. Oddballs – an answer that looks structurally different from the other 4 answers
2. Repeat Numbers – any number that appears in the prompt and the answers
3. Goofy Math – If adding or multiplying numbers from the prompt gets you one of the answers, then that answer is probably wrong

**Example**:
A 10 ounce mixed drink is 30% grapefruit and the rest tonic. How many ounces of grapefruit must be added so that the drink becomes 50% grapefruit?

(A) 2
~~(B)~~ 3.3 **Oddball**
(C) 4
~~(D)~~ 5 **Goofy Math**
~~(E)~~ 10 **Repeat #**

## ADDITIONAL TRIAGE:

1. Pattern Triage – the "logic" behind the question might help you to deduce that certain answers are either "too big" or "too small" to be correct
2. "Which of the Following" – these 4 words mean that the answer is usually D or E. This rule does NOT apply to the Verbal section

# QUANT TRIAGE

**A ground-breaking EMPOWERgmat tactic that will help you to crush the quant section by quickly moving past the questions that don't matter. It's also helpful in aiding you to take an educated guess on any question that you're "stuck" on.**

## QUANT QUESTIONS WORTH TRIAGE-ING

These questions are worth nothing or almost nothing to your overall score:

1. Multi-Shape Geometry questions
2. Combined Rate or Chase-Down questions
3. Complex Permutation, Combination or Probability questions
4. Complex Sequence questions
5. Complex Standard Deviation questions
6. 3 Circle Overlapping Sets questions

## DATA SUFFICIENCY TRIAGE:

1. In DS questions, ratio-based Facts tend to be Sufficient
2. If Fact 1 is Sufficient, then eliminate B, C and E
3. If Fact 1 is Insufficient, then eliminate A and D
4. If Fact 2 is Sufficient, then eliminate A, C and E
5. If Fact 2 is Insufficient, then eliminate B and D

# ALGEBRA

**An essential content area for the Quantitative section of the GMAT**

## Why should you know GMAT algebra:

1. Approximately 15 algebra questions appear on the GMAT (and algebra skills tend to be useful on other types of questions as well)
2. Basic algebra on the GMAT is math that most test takers learned at age 13-14, so the knowledge is probably still there, but most students are "rusty" and need to refamiliarize themselves with the concepts

## 1V1E – 1 variable, 1 equation: I can solve it

Questions with just 1 variable tend to be straight-forward math questions that count! Solve with basic algebra and arithmetic skills.

Be sure that you:

1. Write EVERYTHING DOWN (including when you translate sentences into math formulas)
2. Combine "like" terms
3. Simplify expressions (reduce fractions, etc.

**Example**:

A museum plans to triple its collection of paintings. After doing so, there will be a total of 426 paintings. How many paintings does the museum currently have?

(A) 132
(B) 138
(C) 142
(D) 146
(E) 152

## In Terms of…

"In terms of" questions will usually include those 3 words. While they will appear to be TEST IT questions, they're usually best solved with standard math approaches. They will ask you to solve for a variable (for example, "what is x in terms of y?").

**Example**:

If $y = \frac{3y+6}{3x}$ then what is x in terms of y?

(A) $\frac{y+2}{y}$

(B) $\frac{y}{y+2}$

(C) $\frac{y+2}{2y}$

(D) $\frac{2y}{y+2}$

(E) $\frac{y}{2}$

# ALGEBRA

## Systems

"System" questions involve questions that have 2 or more variables and 2 or more equations for you to use. They're traditional math questions (although they can sometimes be solved with TEST THE ANSWERS).

There are 2 math approaches to these types of questions: Substitution and Combination. On most System questions, the combination method is faster. Be on the lookout to use the substitution method though; in subtle questions, it's actually the faster method.

## 2V2E – 2 Variables, 2 Equations…I can solve it!

The 2V2E is the standard in "System" questions. These questions usually appear as story problems and are worth points.

**Example**:

A class of boys and girls sells tickets for a school raffle. Each boy sells 2 tickets and each girl sells 3 tickets. If 52 total boys and girls were involved and a total of 118 tickets were sold, then how many more boys than girls were involved in the raffle?

(A) 6
(B) 14
(C) 18
(D) 20
(E) 24

## 2V2E – Trap

Make sure the two equations are truly two DIFFERENT equations.

**Example**:

What is the value of 7A – 3B?

1) 14A – 6B = 9
2) 7A + 3B = 44

## 2V2E – Time Shift

When a question involves a shift in time, that shift must apply to each character in the question

**Example**:

Alan is currently 15 years older than Ben. In 4 years, Alan will be exactly twice Ben's age. How old is Alan now?

(A) 11
(B) 19
(C) 23
(D) 26
(E) 37

In 4 Years: (A+4) = 2(B+4)

# ALGEBRA

## 3V3E – 3 Variables, 3 Equations…I can solve it!

The 3V3E is a much rarer question type (so you might not see one). These questions can be solved with a LENGTHY series of calculations. However, there is usually a pattern (often involving the specific question that is asked) that can help you to answer the question in a much faster way.

**Example**:

Bob, Glen and Ed weigh a total of 280 pounds. If 4 times Bob's weight is equal to 660 pounds minus 4 times Ed's weight and Glen's weight is 70 pounds more than half of Ed's weight, then what is twice Glen's weight?

(A) 115
(B) 170
(C) 230
(D) 235
(E) 290

## 3V2E – 3 Variables, 2 Equations… I can still solve it!

The 3V2E is also a much rarer question type (so you might not see one). These questions can be solved with a LENGTHY series of calculations. However, there is usually a pattern (often involving the specific question that is asked) that can help you to answer the question in a much faster way.

**Example**:

Three photographers, Lisa, Mike and Norm, take photos of a wedding. The total of Lisa and Mike's photos is 50 less than the sum of Mike and Norm's photos. If Norm's total photos is 10 more than twice the number of Lisa's photos, then how many photos did Norm take?

(A) 40
(B) 50
(C) 60
(D) 80
(E) 90

# ALGEBRA

## FOIL & REVERSE-FOIL

FOIL – First, Outer, Inner, Last is a math concept that involves Quadratics. You will be asked to FOIL and Reverse-FOIL on the GMAT, so these skills are a must.

**FOIL Example**: $(x + 3)(x + 3)$

$x^2 + 6x + 9 = 0$

**F**irst
**O**uter
**I**nner
**L**ast

**Reverse FOIL Example**: $x^2 + 6x + 9 = 0$

$(x + 3)(x + 3)$

The 3 Classic Quadratics are worth knowing since most test takers will see one or more of them on the GMAT. They're sometimes "hidden" behind other math concepts though (large numbers or the square root symbol), so pay careful attention to how questions are formatted (if you see squared terms, then you might be dealing with a classic quadratic)

Here are the 3 Classic quadratics. Can you FOIL them out?
$(x + y)(x + y) = 0$
$(x – y)(x – y) = 0$
$(x + y)(x – y) = 0$

## SYMBOLISM

Symbolism questions involve a "made up" math symbol. The question will tell you what the symbol means and then will ask you to perform a calculation using the symbol. These questions tend to be rather easy, so pay attention to what the symbol means and do the math correctly.

**Example**:

$a\Omega b = ab + a^2$

$2\Omega 3 = 2 \cdot 3 + 2^2$

$= 6 + 4$

$= 10$

# NUMBER PROPERTIES

**The most powerful EMPOWER tactic for the Quantitative section of the GMAT**

## WHY learn Number Properties:

1. Number properties occur on approximately 10 questions, so they have a significant impact on your Quant Score.
2. NPs show up heavily in DS questions, so knowing NPs will lead to greater success on DS questions.
3. Knowing NPs will give you additional (often faster) ways to answer questions besides conventional math approaches. This knowledge will work well with TEST IT to help you to avoid pacing problems.

## MAJOR NUMBER PROPERTIES

(you will learn additional minor NPs in your EMPOWER Trainings and Quizzes and in the GMAC Official Guide)

even + even = even
even + odd = odd
odd + odd = even

even x even = even
even x odd = even
odd x odd = odd

positive x negative = negative
negative x negative = positive

$odd^{PositiveInteger} = odd$

$even^{PositiveInteger} = even$

$x^{even} = \pm answer$

$positive^{odd} = positive$

$negative^{odd} = negative$

$negative^{even} = positive$

**Example**:
If $0 < F < 1$ and $-1 < G < 0$, then which of the following must be true?

(A) $F - G > 1$
(B) $F + G > 0$
(C) $FG > 0$
(D) $\frac{F}{G} < 0$
(E) $F^2G^2 > 1$

# MATH RULES

**Fundamental Quantitative Section Content**

## WHY you should know math rules:

1. They affect EVERY question in the Quant section
2. They will provide you with necessary content knowledge and faster ways to do the necessary calculations

## RATIOS

Ratios appear on the GMAT in 5-6 questions (about 3 problem solving and 3 DS questions) and these questions usually count! These questions require flexibility on your part (sometimes you must do math, sometimes you must use TEST IT).

Ratios can come in many formats, so it's important to understand that all of the following examples MEAN THE SAME THING:

**Example**:
"2 men to 5 women" = 2:5 = Men/Women = 2/5 = 0.4 = 40% = "2 out of 7 people are men"

2 important things to remember about ratios:

1. Ratios are all about MULTIPLES
2. Ratios tend to be Sufficient

**Example**
Men : Women = 2 : 5

x 1 Men = 2; Women = 5
x 2 Men = 4; Women = 10
x 3 Men = 6; Women = 15
x 4 Men = 8; Women = 20
x 10 Men = 20; Women = 50

etc...

## PERCENTS

Percents show up on the GMAT in several forms:
1. Ratios
2. Interest Rates
3. Mixtures
4. Percentage Change
5. TEST IT questions

Percents can show up as part of various formulas or concepts:

- X/Y (100%) For example: 2 out of 5 = 2/5 (100%) = 40%
- A% of B = (A/100) x B For example 30% of 20 = (30/100) x 20 = 6
- Mixtures = Part/Whole
- Percentage Change = Change/Original = (New – Old) / Old

# SPECIAL MATH RULES

**Fundamental Quantitative Section Content**

## PEMDAS/Order of Operations

1. PEMDAS refers to the order in which you must perform calculations. Math must be done in this order:
2. Parentheses
3. Exponents
4. Multiplication & Division (going left to right)
5. Addition & Subtraction (going left to right)

## Absolute Value

The absolute value signs signal that you are to express the result of the contents as a positive number.

**Example**:
| -3 | = 3

**Example**:
|x - 3| = 5
x = 8 or -2

## BUNCHING

When adding a group of numbers or multiplying a group of numbers, the order doesn't matter. With a large enough group of numbers, bunching can usually create a math pattern/shortcut that you can use to answer the question.

**Example**:
When adding up the numbers from 1 to 10 (inclusive), you could add them up in order (which would take awhile and you might make a math mistake). Instead, try bunching the biggest and smallest numbers, then the next biggest and next smallest, and so on. You'll notice that a pattern emerges. It's faster and easier than adding the numbers up in order.

## ROUNDING

When rounding (or "approximating") numbers:

Round down when the digit is 0 through 4
Round up when the digit is 5 through 9

**Example**:
14.5682 could be rounded to:

15 (the nearest integer)
14.6 (the nearest tenth)
14.57 (the nearest hundredth)
14.568 (the nearest thousandth)

# SPECIAL MATH RULES

**Fundamental Quantitative Section Content**

## DIGITS

- The word “digit” refers to each “space” in a value.
- A digit can be 0 – 9, so a 1-digit number could only be one of those 10 values
- A 2-digit number must be between 10 and 99
- A 3-digit number must be between 100 and 999
- Etc.

## SPECIAL DIVISION RULES

When multiplying or dividing by a negative number, an inequality changes “direction”.

**Example**:
$-2x > 10$

Divide both sides by – 2 and change the direction of the inequality
$x < -5$

Rules to know for faster division:

**2**: A number is divisible by 2 if it ends in 2, 4, 6, 8 or 0
**3**: A number is divisible by 3 if the sum of its digits is divisible by 3
**4**: A number is divisible by 4 if the 2-digit number at the end is divisible by 4
**5**: A number is divisible by 5 if it ends in 5
**6**: A number is divisible by 6 if it’s divisible by 2 AND 3
**9**: A number is divisible by 9 if the sum of its digits is divisible by 9

## PRIME NUMBERS

Prime numbers are divisible by only 2 things: themselves and the number 1.

A partial list of Primes, starting with the smallest:
2, 3, 5, 7, 11, 13, 17, 19, 23, etc.

Note: 0 and 1 are NOT Primes

Prime Factorization is a math concept that you MIGHT use ONCE on Test Day. The concept is that integers greater than 1 are either Prime number or a series of Primes multiplied together.

**Example**:
13 is Prime
14 is a series of Primes multiplied (2 x 7)

# SPECIAL MATH RULES

**Fundamental Quantitative Section Content**

## FACTORS & MULTIPLES

Factors are numbers that divide into other numbers

**Example**: The Factors of 30: 1, 30, 2, 15, 3, 10, 5, 6

Multiples are numbers that are a base number multiplied by an integer

**Example**: The Multiples of 30: 0, 30, 60, 90, 120, etc.

Note: 1 is a factor of EVERY integer and 0 is multiple of EVERY integer

Note: Every number is a FACTOR of itself and a MULTIPLE of itself

## REMAINDERS

Remainders are the "leftover pieces" when doing division. In remainder questions, there is NO decimal and NO fraction, there is only the remainder.

**Example**:
7/4 = 1 remainder 3 = 1 r 3

## SEQUENCES

Sequences measure your ability to follow instructions and paraphrase. The key to understanding sequences is understanding sequence notation.

**Example**:
1, 4, 7, 10, 13, 16, 19...

$A_n = A_{n-1} + 3$

$A_{\text{Any Position}} = A_{\text{Go Back One Position}} + 3$

$A_1$ = 1st Number
$A_2$ = 2nd Number
$A_3$ = 3rd Number
etc.

# SPECIAL MATH RULES

**Fundamental Quantitative Section Content**

## EXPONENTS

You need to know the following exponent rules:

$x^a \cdot x^b = x^{(a+b)}$ Ex: $3^4 \cdot 3^7 = 3^{(4+7)} = 3^{11}$

$\frac{x^a}{x^b} = x^{(a-b)}$ Ex: $\frac{x^8}{x^2} = x^6$

$x^a \cdot y^a = (x \cdot y)^a$ Ex: $2^7 \cdot 3^7 = (2 \cdot 3)^7 = 6^7$

$(x^a)^b = x^{(a \cdot b)}$ Ex: $(3^2)^4 = 3^{(2 \cdot 4)} = 3^8$

$x^{\frac{1}{2}} = \sqrt{x}$ Ex: $4^{\frac{1}{2}} = \sqrt{4} = 2$

$x^{-2} = \frac{1}{x^2}$ Ex: $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

$x^0 = 1$ Ex: $2^0 = 1$

## RADICALS

You need to know the following radical rules:

$\sqrt{x \cdot y} = \sqrt{x} \cdot \sqrt{y}$ Ex: $\sqrt{81 \cdot 64} = \sqrt{81} \cdot \sqrt{64} = 9 \cdot 8 = 72$

$\sqrt{\frac{x}{y}} = \frac{\sqrt{x}}{\sqrt{y}}$ Ex: $\sqrt{\frac{81}{64}} = \frac{\sqrt{81}}{\sqrt{64}} = \frac{9}{8} = 1\frac{1}{8}$

$\sqrt{x}\sqrt{x} = x$; Ex: $\sqrt{3}\sqrt{3} = 3$

$(\sqrt{x})^2 = x$ Ex: $(\sqrt{3})^2 = 3$

$\sqrt{x + y} = \sqrt{(x + y)}$ Ex: $\sqrt{16 + 4} = \sqrt{20} = 2\sqrt{5}$

Examples of arithmetic with radicals:

$5\sqrt{5} - \sqrt{5} = 4\sqrt{5}$

$5\sqrt{5} + \sqrt{5} = 6\sqrt{5}$

$5\sqrt{5} \cdot \sqrt{5} = 5 \cdot 5 = 25$

$5\sqrt{5} \cdot 5 = 25\sqrt{5}$

$\frac{6\sqrt{5}}{3} = 2\sqrt{5}$

# SPECIAL MATH RULES

**Fundamental Quantitative Section Content**

## STATISTICS

When dealing with a group of numbers, arrange the numbers in order from least to greatest. Be careful about numbers that appear more than once and any variables that are included in a group (those variables could positive, negative, zero, big, small, decimals or duplicates of the numbers in the group).

For the group 1, 3, 3, 5, 6

**Mean** = average = 18/5 = 3.6
**Median** = middle = 3
**Mode** = most common = 3
**Range** = big – small = 5

If we add a term to the end, the values change….

For the group 1, 3, 3, 5, 6, 6

The mean = 24/6 = 4
The median = average of the middle 2 terms = (3+5)/2 = 4
The mode = 2 answers = 3 and 6
The range = 5

**Standard deviation**
Standard deviation is a rare concept on the GMAT (you might not see it all). The concept worth knowing is this: when number are close together, the standard deviation is small; when numbers are farther apart, the standard deviation is bigger.

# MATH FORMULAS

**The most powerful EMPOWER tactic for the Quantitative section of the GMAT**

## WHY Learn GMAT Math Formulas?

1. Including Geometry, more than half the questions in the Quant section involve a specific math formula (or more than 1), so knowing the formulas is a must to solving the problem.
2. Math formulas can be used to answer many different versions of the same question.
3. TRIAGE can become easier in some cases by using the formula to estimate the approximate answer to a question.

## Average Formulas:

**Average** $= \frac{\text{Sum of Values}}{\text{Number of Items}}$

## Interest Formulas:

**Simple Interest**: Principal x (1 + Rate x Time)

**Compound Interest**: $\text{Principal} \times (1 + \frac{\text{Rate}}{\text{Periods/Yr}})^{\text{Total Periods}}$

P = Principle investment, r = interest rate, t = time in years

## Distance Formula:

**Distance** = Rate x Time

## Combined Rate:

For objects traveling toward each other:

**Distance Between** = (Rates Added) x (Time to meet)

Two dogs at opposite ends of a field 630 foot field run towards each other along a straight path and at a constant rate each. If the first dog runs 12 feet per second and the second dog runs at 23 feet per second, then how long does it take the two dogs to meet?

(A) 10 seconds
(B) 12 seconds
(C) 18 seconds
(D) 21 seconds
(E) 23 seconds

# MATH FORMULAS

## Chase Down:

**Distance Ahead** = (Rates Subtracted) x (Time to chase down)

**Example**:

Assembly line Alpha starts and creates widgets at a rate of 25 widgets per hour. Exactly an hour later, Assembly line Beta begins production of widgets at a rate of 30 widgets per hour. In how many minutes will the two assembly lines have produced the same number of widgets?

(A) 5
(B) 25
(C) 250
(D) 300
(E) 350

## Work Formula:

**Work** = $\frac{a \cdot b}{a + b}$ = time to finish the job working together

A and B represent the time it takes for each individual to finish the job alone

**Example**:

Alice can paint a room in 3 hours and Bill can paint a room in 6 hours. How many hours does it take the two of them, working together but independently, to paint a room?

(A) 1
(B) 1.5
(C) 2
(D) 2.5
(E) 3

## Overlapping Sets:

You'll see one, possibly two overlapping sets questions. These questions involve any two traits. Some will share both, some neither, some one and not the other.

**Example**:

A pet kennel houses 300 pets over the course of a week. Of the pets housed, 200 were dogs and 140 were groomed at the kennel. If 10 of the pets are neither dogs nor groomed, then how many pets were dogs that were not groomed?

(A) 50
(B) 90
(C) 140
(D) 150
(E) 160

**Use the EMPOWER Tic-Tac-Toe Board**

| | DOG | ~~DOG~~ | TOTAL |
|---|---|---|---|
| GROOMED | 50 | 90 | 140 |
| ~~GROOMED~~ | 150 | 10 | 160 |
| TOTAL | 200 | 100 | 300 |

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# MATH FORMULAS

## Permutations:

Note: Multiple events means multiply! This rule applies to ALL permutation, combination and probability questions in some way.

No math formula required. Draw a picture, keep track of the results and multiply

If 6 different children line up at a bus stop, then how many different arrangements are there for the children to stand in line?

(A) 21
(B) 120
(C) 660
(D) 720
(E) 1200

| Spot | 1ST | 2ND | 3RD | 4TH | 5TH | 6TH | TOTAL |
|---|---|---|---|---|---|---|---|
| Options | 6 | 5 | 4 | 3 | 2 | 1 | 720 |

## Combinations:

**Combination Formula**

**n** = Number of items
**k** = Number of items to be selected

$$\frac{n!}{k!\,(n-k!)}$$

**Example**:

5 different types candy bars are put into groups of 3. Assuming the order of the candy bars doesn't matter, how many combinations of candy bars are there?

(A) 5
(B) 10
(C) 12
(D) 15
(E) 18

$$\frac{5!}{3!\,(5-3)!}$$



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# MATH FORMULAS

## Probability:

**Probability** = $\frac{\text{Desired Possibilities}}{\text{Total Possibilities}}$

"and" = Multiply
"or" = Add

**Example**:

If two dice are rolled and their respective results added, then what is the probability of rolling two dice and ending with a sum of 4?

(A) 1/36
(B) 1/12
(C) 1/9
(D) 1/6
(E) 2/3

$\frac{1st}{6} \times \frac{2nd}{6} = 36 \text{ Options}$

Add to 4
1 + 3
2 + 2
3 + 1
3 Options

$\frac{3}{36} = \frac{1}{12}$

# GEOMETRY

**16% of GMAT Quant Questions**

## WHY you need to know Geometry:

1. 4- 9 Geometry questions show up on the GMAT.
2. Geometry is based on a series of simple formulas. Knowing the formulas makes the questions easy to answer.

Note: If a Problem Solving question includes a drawing, then that drawing is usually to scale and can be used for estimation purposes (unless the question states that the figure is NOT drawn to scale).

Note: If a Data Sufficiency question includes a drawing, then you should NOT TRUST IT. Some DS drawings are completely off; as such, they can not be used for estimation purposes. You can trust whatever numbers or descriptions you are given, but be suspicious of any picture that comes with a DS question.

## Lines

Questions involving straight lines will likely include one or more of the following rules:

1. Lines add up to 180°
2. When lines criss-cross, opposite angles equal one another
3. Parallel lines, when crossed by a third line, will have the same set of 2 angles show up 4 times
4. Perpendicular lines form 90° angles at their meeting point

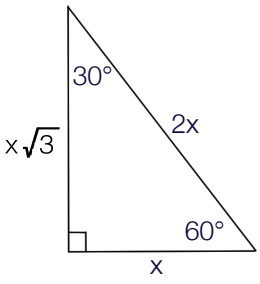
## Triangles

Triangle questions will involve major rules and sometimes minor rules. Be on the lookout for each of these specific ideas on the GMAT:

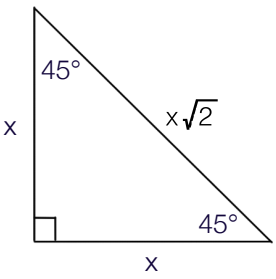
**Major Rules**:

1. Triangles add up to 180°
2. **Area** $= \frac{1}{2}(\text{base} \cdot \text{height})$
3. Pythagorean Theorem: $a^2 + b^2 = c^2$
4. Common Pythagorean triples:
   - **3, 4, 5**
   - **5, 12, 13**
5. Multiples of those triples (for example:
   - **9, 12, 15**
   - **50, 120, 130**
6. **30°**, **60°**, **90°** Triangle
7. **45°**, **45°**, **90°** Triangle

**30°, 60°, 90°**




**45°, 45°, 90°**




Sometimes the following concepts show up; not every one will, but if they show, then you need to be ready for them.

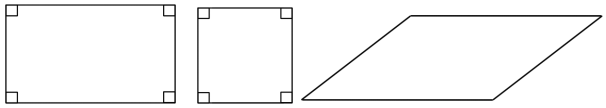
**Minor Rules**:

1. Isosceles Triangles – 2 sides and 2 corresponding angles are equal
2. Equilateral Triangles – 3 sides are equal, all angles are 60 degrees
3. Hidden Right Triangles – in squares or equilateral triangles
4. Triangle Inequality Theorem – with 2 sides, you can figure out the minimum length of the third side (greater than the difference of the numbers) and the maximum (less than the sum of the numbers)

# GEOMETRY

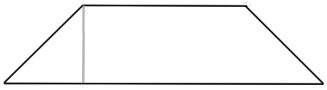
## Polygons

Polygons include any shape with 4 or more sides and usually involve calculating an area or perimeter.



**Area** = base x height

**Perimeter** = sum of sides



**Area** = $\frac{\text{top + bottom}}{2}$ × height

## Circles

ALL circle questions come down to the RADIUS. With the radius, you can solve almost any question. When a circle interacts with another shape, pay careful attention to how the radius factors into that other shape.

**Area** = $\pi r^2$

**Circumference** = $2\pi r$

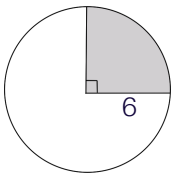
**Sector Area**: A fraction of the area

**Arc Length**: A fraction of the circumference

**Example:**

**Area** = $36\pi$
**Sector Shaded** (90° is a quarter of the circle) = $9\pi$

**Circumference** = $12\pi$
**Arc** (90° carves a quarter of the circumference) = $3\pi$



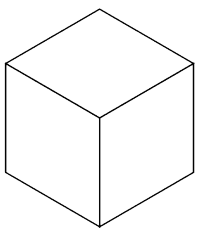

## Multi-Shape

These shapes will always vary. Nevertheless, they are always combinations of the other GMAT geometry rules, and therefore rarely contains any unique rules. Break this shapes apart by looking for shapes you're familiar with.

Note: Multi-Shape generally show up 1 time on Test Day, can take 3 minutes to solve, and tend to be worth very little (and sometimes nothing). Your best move on these questions is typically to TRIAGE.

## Solids

Solid questions involve rectangular solids (boxes), cubes (a type of rectangular solid in which all dimensions are the same) and cylinders (cans or tubes). They usually involve volume (what the solid will "hold") and sometimes surface area.

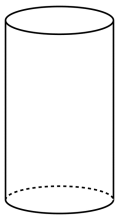


**Volume** = base x width x height

**Surface Area** (Sum of the faces) =

Sum of:

2(base x width)
2(width x height)
2(base x height)



**Volume** = $\pi r^2 h$

**Surface Area** (top + bottom + side) =

$2\pi r^2 + 2\pi rh$

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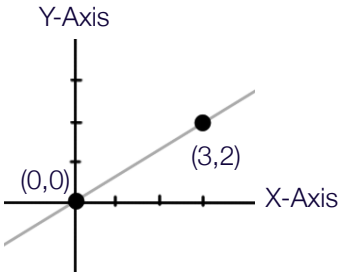
| Section | Question Type | Category | |
|---|---|---|---|
| QUANT | ALL | GEOMETRY | **NOTE**: This packet is to be used in conjunction with the Modules in your Empower GMAT Course. This packet is NOT designed to be a complete treatment of any subject herein. |

# GEOMETRY

## Graphing/ Functions

Graphing questions are based on simple graphing rules and concepts, including:

1. Graphing co-ordinates (x, y)
2. Graphing lines (y = mx + b)
3. Slope (Rise/Run)
4. Calculating new lines based on partial information
5. Calculating where lines intersect one another




**Slope** = $\frac{\text{Rise}}{\text{Run}} = \frac{2}{3}$

**Equation of the line**: $y = \frac{2}{3}x + 0$

# RC TACTIC

**Dominate GMAT RC by mastering the tactics for passages and the questions**

Reading Comp accounts for roughly 35% of your Verbal score.

## Passage Tactic

1. **OWN THE PASSAGE & Set up your RC Ladder™** - There are no shortcuts. You have to read the passages very carefully. Be an EMPOWERED reader:

   - Concentrate - Invest FULL mental attention as you read
   - Pace Yourself - You must read at a comfortable pace, not letting the clock or adrenaline speed up your reading. Allow for excellent comprehension, but never get bogged down in the details or complex terminology
   - Take Short Absorption Pauses - Pauses facilitate absorption, and prevent the reader from racing through the passage

   Read to be able to answer the following questions:
   - Why did the author write the passage? [For example: to discuss, argue for, or against something]
   - What was the author's main point? [For example: To discuss a method, and acknowledge its shortcomings]

2. **KNOW THE GOAL** - To get RC questions right, you have to know the goal of the question. That means knowing each of the 3 question types, and reading the particular question EXTREMELY carefully so that you can make your call as to what you think the answer should be.

3. **OWN THE ANSWERS** Nitpick the answer options so that you can slash the wrong answers, and match the right answer with your call. Often, the difference between the right option, and a runner up comes down to a difference of one word.



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# PURPOSE QUESTIONS

**30% of GMAT RC Questions**

## Goal of the Question

What does a Purpose Question ask for?

Purpose questions ask you to identify the PURPOSE of all or part of the passage. With these questions, we're trying to get inside the author's head---why did you add this to the passage. What on Earth did you think adding this to the passage would do?

**Example**:
A 1998 German study published in the journal Risk Analysis analyzed the effect of all emissions from a given source of electricity on life expectancy. For the same amount of electricity generated, the years of life lost from the different major fuel sources compared with nuclear power are: coal power, about five times as much; oil, 14 times as much; and natural gas, about 1.7 times as much.

Which of the following best describes the function of the first paragraph?

**A correct answer**: To introduce the findings of a study

**An incorrect answer**: To highlight the difference in the loss of life expectancy from nuclear power, and natural gas.
This option is too narrow in focus because it only states that the goal is to discuss the distinction between nuclear power, and natural gas, when in reality the passage did so much more.

## Identify Purpose Questions

How are Purpose Questions typically asked? They will usually ask for any of the following:

"primary purpose"
"role"
"function"
The example in paragraph two was most likely mentioned "in order to"

Or any question that asks for the PURPOSE of the entire passage, or the purpose of a piece of the passage.

# INFERENCE QUESTIONS

**Inference Questions: 40-45% of RC Questions**

## Goal of the Question

What does an Inference Question ask for?

To distinguish fact from possibilities. In other words, you're looking for the one, and ONLY ONE answer choice that MUST BE TRUE from the information provided.

These questions are very similar to data sufficiency in the sense that they reward those who can distinguish between when something is likely true and when it has to be true for a fact.

**Example**:
Company A introduced a new product last year that is selling better than any of its other currently produced products, and perhaps it may continue to sell better than any of the products its currently developing.

The passage suggests which of the following?

**A wrong answer**: The new product **is** Company A's most profitable product.
Just because the product is the company's best selling product doesn't automatically make it the most profitable.

**A correct answer**: The new product **could be** Company A's most profitable product.
We don't that the new product **is** the company's most profitable, but we do know that it **could be**.

## Identify Inference Questions

Inference questions will typically involve the following language:

"passage suggests"
"passage supports"
"inferred"
"author implies"
"author most likely agree with"
"most similar to"



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# DETAIL QUESTIONS

**Detail Questions: 30% of RC Questions**

## Goal of the Question

What does a Detail Question ask for?

To rapidly find details specifically mentioned in the passage.

You can think of detail questions as "find it" questions. With detail questions its simply a matter of finding a specific detail mentioned in the passage.

**Example**:
Company A introduced a new product last year that is selling better than any of its other current products, and perhaps it may continue to sell better than any of the new products its currently developing.

According to the passage, which of the following is true of Company A?

**A wrong answer**: Sales of its products are up.
The passage doesn't state that sales of the company's products are up, nor could we infer that they are.

**A correct answer**: Sales of its new product exceed that of any of its other products.
Yes, the passage states that the sales of its new product exceed that of any of its other products: "a new product last year that is selling better than any of its other current products".

## Identify Detail Questions

Detail questions almost always involve the following language:

"according to the passage"
"states"
"mentions"

Or any question that asks you to retrieve data specifically stated in the passage.



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# PARALLELISM

**45% of GMAT SC Questions Test Parallelism**
**The most common SC error type**

GMAT Parallelism Consists of 2 Major Categories:

1) Two-Part Construction - 80% of Parallelism Questions
2) Lists - 20% of Parallelism Questions

## 2-Part Construction

Idioms - Idioms are random pairings of words ("either...or", for example). You'll need to know all of the following 2-Part Parallelism Idioms:

| | Idiom | In-Context Example |
|---|---|---|
| 1 | **More** A **than** B. | There are more Problem Solving questions in Quant than Data Sufficiency questions. |
| 2 | **As many** A's **as** B's. | The GMAT had almost as many test-takers as it did the year prior. |
| 3 | **As much** A **as** B. | A GMAT tactician does not need as much time to answer a question as others do. |
| 4 | **Not only** A, **but also** B. | To master the GMAT, a student not only needs to study but also train. |
| 5 | **The more the** A, **the less the** B. | The more the student trains, the less the chance of missing a Test It opportunity. |
| 6 | **No less was** A **than was** B. | No less was the importance of learning to read at 150 WPM, than was mastering the three RC question types. |
| 7 | A **is to** X **as** B **is to** Y. | Proper reading style is to the GMAT test-taker as nutrition is to the marathoner. |
| 8 | **To** A **is to** B. | To apply tactics to the GMAT is to operate at a higher level of efficiency and effectiveness. |
| 9 | **Not** A, **but rather** B | GMAT students are not just studying for the GMAT but rather training for it. |
| 10 | A **instead of** B. | Those successful at SC look for patterns instead of just reading through each option. |
| 11 | **The same to** A **as to** B. | The consultant was sure that the impact of a strong personal brand would be the same to someone on an admissions committee as to a recruiter at a major company. |
| 12 | **Range from** A **to** B. | Scores on the GMAT range from 200 to 800, although the median is a 550. |
| 13 | **Both** A **and** B. | Successful Quant test-takers immediately look to apply both Test It and Test The Answers. |
| 14 | **Neither** A, **nor** B. | Critical Reasoning questions neither directly refute the conclusion, nor the stated evidence. |
| 15 | **Either** A, **or** B. | In an SC question, you will typically find that either parallelism, or efficiency is tested in at least one of the options. |
| 16 | **Mistake** A **for** B. | GMAT Assassins never mistake a Test It question for a lengthy algebra question. |

# PARALLELISM

**45% of GMAT SC Questions Test Parallelism**
**The most common SC error type**

GMAT Parallelism Consists of 2 Major Categories:

1) Two-Part Construction - 80% of Parallelism Questions
2) Lists - 20% of Parallelism Questions

## Lists

Lists typically contain 3 items or more, and they need to be listed in a consistent way. Here are the categories on the GMAT:

1. **Nouns** - Thomas, a regular shopper at Colson's, bought **a new pair of slacks**, **an overcoat**, and **a pair of jeans**.
2. **Verbs** - The company plans to **expand** to new regions, **bolster** its recent marketing campaign, and **cut** its prices.
3. **Adjectives** - The exhibit was regarded as **profoundly emotional**, **beautiful**, and **well-thought out**.

## How To Tell If Parallelism Is In Play

1. **Use of and/or/nor** - Before the last item in a list, there must be connector such as "and".
2. **Commas** - Lists require commas, so if you see a sentence with several commas, check to see if you can spot a list. If so, you'll have a huge advantage eliminating options.
3. **Long Sentences** - If you look at the longest official GMAT questions, the vast majority test Parallelism (they need length to make the list harder to spot).

# MODIFIERS

**20% of GMAT SC Questions**
**One of the top error types on the GMAT**

Clausal GMAT Modifiers Consists of 3 Major Variations:

1) Underlined Modifier - Filled to the brim, the thermos was a testament to the importance of coffee.
2) Underlined Subject - Filled to the brim, the thermos was a testament to the importance of coffee.
3) Entire Underlined Sentence - Filled to the brim, the thermos was a testament to the importance of coffee.

## 1. Underlined Modifier

When the first clause of a sentence is underlined, that clause is almost always a modifier. The modifier modifies the subject immediately after the modifier.

**Example**:
Right:
Having trained for twenty years, **Jonas Matheson** won the trophy by sheer dedication.

"Having trained for twenty years" describes what? Jonas Matheson. Correct!

On par with the Colosseum in Rome, Italy, the Eiffel Tower in Paris, France, is one of the world's most recognizable landmarks.

## 2. Underlined Subject

When the second clause of a sentence is underlined, that clause is almost always being modified. The modifier must correctly modify what follows the comma.

**Example**:
Wrong:
Erected in 1889 as the entrance arch to the 1889 World's Fair, Paris, France is home to the Eiffel Tower, is known as one of the world's most recognizable landmarks.

"Erected in 1889 as the entrance arch to the 1889 World's Fair" describes what? The Eiffel Tower, not Paris France. This sentence is wrong!

A modifier most modify what immediately follows or precedes it. If what follows doesn't match, it's wrong!

## 3. Entire Sentence Underlined

When the entire sentence is underlined, the issue is almost always a modifier error. These sentences usually require a fairly dramatic rewrite if wrong. The modification in the sentence must comply with all rules of modification.

**Example**:
Right:
**The doctor,** after rendering the opinion after extensive analysis, **informed the family** that the patient's prognosis had improved.

Who rendered the opinion after extensive analysis? The doctor. Modifier correct!
Who informed the family? The doctor. Modifier correct!

# MODIFIERS

**20% of GMAT SC Questions**
**One of the top error types on the GMAT**

Other Modification:

## Which

"Which" should be preceded by a comma, and modify the item just before the comma. You can think of ", which" as a reverse modifier

Example:

Right:
**The world's largest steppe region**, **which** is often referred to as "the Great Steppe", is found in southwestern Russia and neighboring countries in Central Asia,.

This is not to be confused with "in which". "In which" describes detail within something. Example: "scenario in which", "strategy in which"

## Word Modification

The placement of a single word can have a significant impact on the meaning of a sentence.

Example (suppose the coach believes the defense is well organized):

Wrong (implies the coach seemed to argue):
The coach seemingly argued that the defense was well organized.

Right (implies the defense seemed well organized):
The coach argued that the defense was seemingly well organized.

## Signals That Modification Is In Play

1. **Whole Clause or Sentence Is Underlined** - On official questions, there is an extremely high likelihood that Modification is being tested if the clause is precisely underlined (precisely meaning: from beginning to comma, comma to comma, or comma to period), or even the entire sentence.
2. **"Which"** - If you see "which" at the beginning of a sentence
3. **Words Bounce Around the Options** - When you conduct your 5-second scan, you happen to notice that same word or words bounce around to different placements in the underlined section, a word modification issue is likely in play.

# IDIOMS

**20% of GMAT SC Questions**
**One of the top error types on the GMAT**

Although there are 1000s of idioms in the English language, only a core handful of idioms are repeatedly tested on the GMAT.

Sometimes a question will feature an idiom error; however, most of the time, idioms will show up as a smaller scale issue, such as a difference between only two answer options.

Mastering GMAT idioms is not only about pure rote memorization, but also your ability to recognize their presence in the context of a full sentence. Make flash cards for the following list, and master it. It typically takes a dedicated student at least 5-7 flash card pass-throughs to have this extensive list down. It is also helpful to break your flashcard list down into chunks, and to use the accompanying Idiom Drills in the course to reinforce mastery and recognition.

## EMPOWERgmat's Official Volume-Weighted Idiom List

EMPOWERgmat idiom list is filtered to include idioms actually used in Official GMAT material so that you don't waste time memorizing idioms you won't see on test day.

Your mastery of idioms must satisfy two criteria:

1) **Recognition** - You must be able to notice these idioms on an actual question. To do that, burn the trigger word into your memory. For example, with "regard as", burn the word "regard" into your memory so that you can spot it on an actual GMAT question.
2) **Memorization** - You must memorize the matching word in the idiom pair, so that you can either correct it, or recognize that it's already correct

| | AS | In-Context Example |
|---|---|---|
| 1 | perceive as | Many perceive Wharton's finance program as the pinnacle of the specialization. |
| 2 | regarded as | Kellogg is regarded as one of the schools for management. |
| 3 | such as [example] | An MBA applicant needs to supply several items such as a GMAT score, and letters of recommendation. |
| 4 | think of as | You should think of the GMAT as an event that you need to rehearse for (rather than studying for a test you need to take). |
| 5 | treat as | One should treat an RC passage as they would a well-produced documentary. |
| 6 | used as | Triage should be used as a way to transfer valuable time away from a low return question to several higher return questions. |
| 7 | view as | Admissions committees view the GMAT as a strong indicator for success at business schools. |

## GMAT Idiom Groups (Continued)

| | FOR | In-Context Example |
|---|---|---|
| 11 | allows for | The wide array of Quant Tactics allows for many different approaches to solve the same question. |
| 12 | craving for | Many MBAs have a craving for the entrepreneurial opportunities found in Silicon Valley. |
| 13 | except for | Test The Answers can be applied in word problems when there are numbers in the options except for cases in which the answer is not the value of a single variable. |
| 14 | mistake A for B | It can be tempting to mistake a Test It or Test The Answers question for an Algebra question. |
| 15 | provide for | It's prudent to provide for sufficient time to draft, edit, and polish the application essays. |
| 16 | responsible for | To master SC, the test-taker needs to be responsible for the 7 major error types, and an ability to recognize them in the 5-Second Scan. |
| 17 | sacrifice A for B | Often, many GMAT test-takers decide it necessary to sacrifice social time for more GMAT training time. |
| 18 | sympathy for | It can be easy to have sympathy for the many GMAT test-takers who never learn tactics. |

| | FROM | In-Context Example |
|---|---|---|
| 19 | differ from | It is important to learn to differ one SC error type from another. |
| 20 | different from | Applying Test It is substantially different from the experience of applying algebra. |
| 21 | discourage from | GMAT students should be discouraged from considering the prep process as merely a matter of completing assignments. |
| 22 | distinguish A from B | In CR, it is powerful to be able to distinguish key missing information from the information presented. |
| 23 | divergent from | Approaching the GMAT prep process with a training oriented mindset leads to a score improvement trajectory divergent from those with simply a studying mindset. |
| 24 | independent from | Mastering GMAT tactics requires one to be independent from prior assumptions, and conflicting approaches. |
| 25 | isolated from | To solve for a variable using algebra, that variable must be isolated from other variables. |
| 26 | prohibit A from B-ing | The EMPOWERgmat tactics prohibit a test-taker from doing a question that would obviously take too long. |
| 27 | results from [cause] | The range results from measuring the distance between the maximum and minimum values in a set. |
| 28 | separating from | Separating yourself from a question that needs to be Triaged can take intense self-discipline. |

## GMAT Idiom Groups (Continued)

| | OF | In-Context Example |
|---|---|---|
| 29 | a consequence of | A significant score increase is invariably a consequence of improving the intensity and care of your reading. |
| 30 | A instead of B | In SC, quickly scan the options first instead of jumping into reading the question and options. |
| 31 | afraid of | It can be easy to be afraid of running out of time; however, resisting the urge to rush will help optimize pacing. |
| 32 | approve/disapprove of | Having an admissions expert approve of application essay topic selection, and essay style can dramatically improve the outcome of the application process. |
| 33 | capable of | CR is remarkably easier to master when the test-taker is capable of spotting the 3 major CR assumptions in CR argument prompts. |
| 34 | composed of | The Quant section is composed of a mixture of Problem Solving and Data Sufficiency questions. |
| 35 | [person] native of vs. [characteristic] native to | Steve jobs was a native of San Francisco, California.<br>The SOS/ProDOS file system is native to Apple SOS. |
| 36 | out of | Without proper implementation of Triage, it's all too easy to run out of time. |
| 37 | relieved of | A test-taker can be relieved of the pressure to rush through a passage knowing that 150 WPM is plenty of time. |
| 38 | result of B | A great GMAT score is the result of a command of core content, and an ability to perform a certain set of skills. |

| | OVER/ABOUT | In-Context Example |
|---|---|---|
| 39 | over | Used to denote tension/a difference of opinion between the parties (argument over; dispute over) |
| 40 | about | Used to denote more neutral conversation/communication (discussion about; lecture about) |

| | ON | In-Context Example |
|---|---|---|
| 41 | based on | The decision to use Test It is based in part on whether there are variables in the question. |
| 42 | centers on | The right option in an Inference question centers on whether the option must be true based on the information in the prompt. |
| 43 | depend on | The right option in an Assumption question depends on whether the argument would collapse without that information. |

| | THAN | In-Context Example |
|---|---|---|
| 44 | better than | Triaging a question after 20 seconds is better than spending 4 minutes on it and getting it right. |
| 45 | less than | Reading at 150 WPM with intensity and care takes less time than trying to rush since rushing requires more frequent re-reading, and a longer time to answer the questions. |
| 46 | more than | More MBA applicants are interested in entrepreneurship than ever before. |

## GMAT Idiom Groups (Continued)

| | THAT | In-Context Example |
|---|---|---|
| 47 | contend that | Some people incorrectly contend that hard questions matter more than medium questions. |
| 48 | doubt that vs cast doubt on | A correct Weaken option raises doubt that the conclusion logically follows. A correct Weakener option will cast doubt on the argument. |
| 49 | enough A that B | Great GMAT students conduct enough training that knowing which tactical decision to make becomes automatic. |
| 50 | so A that [noun] | The 3 major CR assumptions are so frequent that at least one can be found in every single CR argument. |

| | TO | In-Context Example |
|---|---|---|
| 51 | failed to (perform) | Mistake Tracker analysis almost always reveals that the test-taker failed to read carefully on several questions. |
| 52 | forbid to A | GMAC test-center policies forbid test-takers to bring cell phones into the test facility. |
| 53 | identical to | The rushed way many untrained test-takers read RC is identical to how they read email. |
| 54 | intended to | The relatively new IR section was intended to provide schools with a new data point; however, the section remains insignificant in the admissions process. |
| 55 | linked to | Strong GMAT performance has been linked to a significantly higher likelihood of success at Business school |
| 56 | native to | A sense of skepticism is a trait native to those who perform better at Data Sufficiency and Critical Reasoning. |
| 57 | oblivious to | Those with pacing problems tend to be oblivious to the need to let certain questions go on purpose. |
| 58 | opposition to | Even though the GRE has become widely accepted at MBA programs, the statistics from admissions committees appear to show that there is some opposition to valuing GRE scores the same they do GMAT scores. |
| 59 | permit A to B | The GMAT test-center will permit the test-taker to have snacks and beverages during the breaks. |
| 60 | persuade A to B | Many admissions experts will persuade the candidate to convey leadership experience, and comfort in team settings. |
| 61 | potential to | Improving reading quality and the ability to Triage has the potential to lock upwards of 100 points, depending on the score baseline. |
| 62 | prefer A to B | Since many GMAT test-takers get tired between 2-4 pm, it's not surprising why most prefer a morning test administration to an afternoon one. |
| 63 | preferable to | Rather than going by the approach that's most comfortable, it is preferable to use the approach that gets you to the answer most efficiently. |
| 64 | prior to | Prior to conducting any studying or training, the global average starting score is 460. |
| 65 | range from A to B | GMAT scores at Harvard Business School's range from 510 to 790. |
| 66 | resistance to | It's quite common for GMAT students to show resistance to learning new approaches. |
| 67 | seem to indicate | After a student has progressed through the lessons, the Mistake Tracker analysis will seem to indicate that the source of mistakes is not content based, but rather tactically based. |
| 68 | similar to | Early on in the training process, an Inference might appear similar to an Assumption, but experience will help reveal otherwise. |
| 69 | so A as to [verb] | A high score on the GMAT is so powerful as to open the doors to top rated programs, and scholarship funding. |

## GMAT Idiom Groups (Continued)

| | TO (continued) | In-Context Example |
|---|---|---|
| 70 | subscribe to | Many uninformed test-takers incorrectly subscribe to the school of thought that the GMAT Quant section is solely a math exam. |
| 71 | superior to | The RC Ladder enables test-takers to maintain a larger-level view superior to a solely word-by-word view. |
| 72 | try to | Before launching into math, a highly-trained GMAT test-taker will first try to detect an advantageous tactical approach. |
| 73 | whether to | The moment it becomes clear that a question could take too long or is too complicated, the wise test-taker will determine whether to Triage it immediately. |
| 74 | A enough to B | Know the CR and RC questions types well enough to definitively understand the type of information you're being asked to find. |
| 75 | agree to [course of action] vs agree with [a person/ idea] | A GMAT test-taker needs to agree to a comprehensive training plan to maximize success. We agree with the claim that practicing realistic materials in a realistic setting is imperative to proper exam training. |
| 76 | attribute to | Successful Verbal test-takers attribute their success in large part to careful, highly engaged reading. |
| 77 | averse to | It is common to be averse to new tactics that challenge old habits. |
| 78 | compare to [resemblance or analogy] | It is easy to compare the critical thinking skills required in business decisions to those required in GMAT questions in that both hinge on an awareness of critical missing information, and what can and cannot be concluded from the knowledge on hand. |
| 79 | compare with/to [differences or similarities; "to" tends to be preferred] | Compared with a typical math test, the GMAT varies considerably since the GMAT requires not only math but also critical thinking. |
| 80 | in contrast to | In contrast to the perception that it's good to do as many practice questions as possible, the most efficient test-takers focus on completely understanding every nuance of a smaller library of questions |
| 81 | correspond to [non-human] | GMAT performance tends to correspond to success in business school. |
| 82 | decide to [verb]; decide on [noun] | If a question is likely to take too long, you should decide to Triage it. Before you begin to solve a question, you should decide on the most appropriate tactic. |
| 83 | enable A to B | Applying a 150 WPM reading pace to RC will enable you to cultivate a stronger understanding of the passage, and the author's intent. |
| 84 | encourage A to B | Even though the GRE has become more broadly accepted by business schools, admissions experts still encourage candidates to take the GMAT. |

## GMAT Idiom Groups (Continued)

| | TO BE | In-Context Example |
|---|---|---|
| 85 | believe to be | Even though GMAC keeps the number of experimental questions a secret, many experts believe there to be up to 9 experimental questions per section. |
| 86 | estimated to be | The median GMAT score is estimated to be 550. |
| 87 | likely to be | As the demand for MBAs continues to grow, the GMAT is likely to be even more important in the admissions process. |
| 88 | so [adj] as to be A | Triage is so effective as to be one of the most important tactical assets for GMAT success. |

| | WITH | In-Context Example |
|---|---|---|
| 89 | agree with [idea, person]; agree to [terms] | It is easy to agree with the wisdom of knowing exactly what each CR and RC question type asks for. It is important to agree to a study plan and be consistent about following it. |
| 90 | argue with | A well known GMAT company erroneously attempted to argue with the well established claim that the first 10 questions have greater score elasticity. |
| 91 | concerned with | The author of the passage is primarily concerned with which of the following? |
| 92 | consistent with | The updated enhanced GMAT score reports appear consistent with the claim that 20% of the questions could be experimental, and have no impact on your score. |
| 93 | credit with [attribute] | EMPOWERgmat has been credited with the highest 700+ performance rate according to GMAT Club Verified User reviews. |

| | CONSIDERED | In-Context Example |
|---|---|---|
| 94 | considered ___ [BLANK] | A GMAT score above 700 is considered an especially high mark.<br>NOT: A GMAT score above 700 is considered to be an especially high mark. |

# VERB TENSE

**15% of GMAT SC Questions**
**One of the more common error types on the GMAT**

The verb tense family of errors is one of the most intricate areas of content on the GMAT. Grammar books, and other test prep companies make this way more complicated than it needs to be. Here's what you need to know about verb tense for the GMAT:

## Time-Frame

Check the time-frame of what's being referred to in the original sentence by reading the sentence carefully to understand the author's intent. The Verb Tense will either be:

1) **Simple**:
   A. The Past: "worked"; "drove"
   B. The Present: "works"; "drives"
   C. The Future: "will work"; "will drive"

2) **Complex** (far more likely to appear on your exam):
   1) **Past to the Present** - Started in the past, and continues to the present, or into the future (has/have).

      **Example**:
      Antonio **modeled** his craft after the legendary Thomas Wolfgang, and **has** been credited with the title of "living legend".

      Here, Antonio began modeling his craft in the past, but the title remains in place at the present.

   2) **Two things in the past** - If two events happened in the past, looking back from the present the 1st thing requires the verb "had".

      Vincenzo **had** been hungry until the feast **arrived**.

      Here, looking back we see that Vincenzo was first hungry, then the feast arrived. Both of these events happened in the past, so the word "had" MUST be applied to the first event.

## Miscellaneous Verb Tense Errors

1) **For [VERB]ing**: Whenever you see an option between a verb in the form "**for** [VERB]**ing**" and "to [VERB]", the "to [VERB]" form, also known as the infinitive form, is correct. The test-writers consider the "for [VERB]ing" form "awkward".

**Example**:
The company recently invented a new payroll accounting platform **for making** payroll management easier to administer.

"for making" is wrong on the GMAT. Simply change the verb to the infinitive form, "**to make**".

Also, note that nothing should go between the "to" and the "verb". "To boldly go" would be incorrect on the GMAT. It should be "to go boldly"

## Miscellaneous Verb Tense Errors (continued)

2) **Instructions**: Whenever a sentence involves an instruction, the verb form should be adjusted (also known as Subjunctive Mood).

All instructions should:
Precede with the word "**that**" to announce that there is a packet of information that follows.
A common resolution: "**Be**" followed a verb in infinitive form (without a "**to**" and without a "**should**").
Sometimes, that means use of the word "be".

This Subjunctive Mood would be triggered by any of the following:

A. Orders
B. Demands
C. Laws, restrictions, rules
D. Suggestions
E. Requests

**Examples**:
The city-wide **ordinance requires** **that** leaf-blowers only **be used** during daylight hours.
The doctor **suggested** **that** the patient **reduce** sugar and carbohydrate intake.

3) **Hypotheticals**: Whenever a sentence involves a hypothetical scenario, either in the past or the future, certain rules are triggered.

A. "**If...were**" - The sentence needs the word "if" to establish the hypothetical condition, and the verb form "were". (see "The Ws" rules for "whether")
B. "**would**", "**could**" - The word "would" or "could" should introduce what happens in the hypothetical scenario

**Example**:

**If** Shelly **were** to qualify for competition, she **would** likely fare well against most of her rivals.

4) **"being"**: Whenever "being" is used to describe a state, and appears in the middle of a sentence, it's wrong on the GMAT.

**Example**:
Wrong:
The shipping lane being a conduit for passenger ships and Panamax class cargo containers, is heavily used.

Right:
The shipping lane, a conduit for passenger ships and Panamax class cargo containers, is heavily used.

"being" is not universally wrong on the GMAT. Here are some cases in which "being" can be OK:

- At the beginning of a sentence
- It follows a comma, and is used as a connector in a sentence

## Signals That Verb Tense Is In Play

1. **Different Tenses in The Options** - If you notice that the Verb Tense differs between the options, Tense has to be in play. You can exploit that recognition to read the original sentence to determine the intended time frame referenced.
2. **"That" Shows Up In Some of the Options** - If you see "that" in some of the options, check to see if the sentence contain an instruction
3. **"Being" In Some of the Options** - If you see "being" in a number of the options, look to see if it violates the rules, and dump it.

# AGREEMENT

**10-15% of GMAT SC Questions**
**One of the more common error types on the GMAT**

There are 2 categories of Number Agreement errors

## 1) Verb/Pronoun

A singular or plural verb or a pronoun must match the subject it references.

Be on the lookout for these trigger words: **is/are, has/have, it/they**

Once you see these words, see if the subject agrees

**Examples**:
Wrong:
A recent survey indicates that **the economy**, despite the consensus of the **analysts**, **are** headed for a modest improvement in the coming 2 to 3 quarters.

The verb "are" is referring to a singular subject---"the economy". Wrong! "analysts" is the fakeout. Here's the correct version:

Right:
"A recent survey indicates that **the economy**, despite the consensus of the **analysts**, **is** headed for a modest improvement in the coming 2 to 3 quarters.

Wrong:
**The company** announced **their** new initiative to promote growth in regions that had been lagging.

The pronoun "their" is referring to a singular company, so it's wrong! It should be:

Right:
**The company** announced **its** new initiative to promote growth in regions that had been lagging.

## 2) Random Verb

Beyond the trigger words **is/are, has/have,** other verbs must match with the subject, such as "depend", "suggest", and "decide".

**Example**:
Wrong:
**The discipline** of the students, especially after the tumultuous events this year, **depend** on the successful transition of the new administration.

The plural verb "depend" does not match the singular subject "the discipline". It should be:

Right:
**The discipline** of the students, especially after the tumultuous events this year, **depends** on the successful transition of the new administration.

# AGREEMENT

**10-15% of GMAT SC Questions**

Additionally, the GMAT tests whether the reference to a subject is clear

## Ambiguity

A pronoun must have a clear reference. If there's any chance it could refer to more than one thing, it's wrong.

**Example**:
Wrong:
The newspaper featured the new model, and critics raved about **its** appearance.

Right:
The newspaper featured the new model, and critics raved about **the model's** appearance.

## Countability

If you can count something, use
- fewer
- number
- many

If you CAN'T count something use
- less
- amount
- much

**Example**:
Wrong: Of the recent **respondents** to the survey the **amount** who voted yes...

Right: Of the recent **respondents** to the survey the **number** who voted yes...

## Signals That Agreement Is In Play

1. **Splits Between is/are, have/has, it/they** - If you can spot these differences, look to see if the reference is singular or plural. Then, you'll be able to eliminate 2 or 3 options in a snap.
2. **Splits Between a Noun and a Pronoun** - If some options reference a noun, and others only use a pronoun, Ambiguous Pronouns are in play. If there's >0% ambiguity, dump the options with a pronoun.
3. **Splits Between fewer/less, Etc.** - If you see a distinction between countable and uncountable terms, look to see whether the subject is countable, and eliminate accordingly.

# COMPARISONS

**10% of GMAT SC Questions**

All GMAT comparisons must contain items that are DIRECTLY comparable, and parallel.

## Logical Match

These trigger words typically announce a comparison: **like/unlike**

The GMAT test-writers will try to pull a fast one on you---the compared items won't match. Find a pair of items that would make an exact logical match, and eliminate any answers that don't involve a direct logical match.

**Examples**:
Unlike the **Beagle**, the **snout** of the Bulldog...

Beagle and Bulldog match, but "Beagle" and "snout" don't. It should be:

Unlike **the snout of the Beagle**, **the snout of the Bulldog**...

Or:

Unlike the **Beagle**, the **Bulldog** has a snout that...

You'll also note that the items compared are also parallel. Comparisons and parallelism go hand-in-hand.

## Signal That Comparison Is In Play

1. **Split Between Unlike (and sometimes "Like")** - By far, the most powerful, and most common signal that Comparison is in play: the word "unlike" guarantees that a comparison is in play. Look to see if the logic of the way the comparison is written makes absolute sense, otherwise, dump options the muddle the logical comparison.

# THE Ws

**10% of GMAT SC Questions**

## Which vs. That

"Which" should be preceded by a comma, and modify the item just before the comma. A reverse modifier

**Example**:
Right:
**The world's largest steppe region**, **which** is often referred to as "the Great Steppe", is found in southwestern Russia and neighboring countries in Central Asia,.

This is not to be confused with "in which". "In which" describes detail within something. Example: "scenario in which", "strategy in which"

When "which" appears all alone in the middle of the sentence, without a comma, almost always the solution is to use the word "that" instead.

## Whether vs. If

"Whether" is used to introduce different outcomes/scenarios, and there is no need to include "or not"—it's implied.
"If" is used to introduce a condition.

**Example**:
Right ("whether" introduces two different outcomes: inventories large or even smaller):
Factory orders are likely to decline in the months ahead, **whether inventories remain fairly large**, or even drop.
"Whether" is correctly used here because it introduces different outcomes, not a condition.

Right ("if" introduces a condition: deal completion before Q3):
**If the deal were to be completed prior to the close of the third quarter**, then we would likely earn a bonus.

## When & Where

On the GMAT "when" can only be used in reference to a time, and "where" can only be used in reference to a place.

**Example**:
Wrong:
The commander looked back to **the phase** in the initiative **where the defensive line was weaker than it is today**.

Right:
The commander looked back to **the phase** in the initiative **when the defensive line was weaker than it is today**.

## Who vs. That

"Who" refers to a person or a group of people. "That" is used to refer to anything else.

**Examples**:

Right:
**The leader who** recently called for sales tax reform...
**The boat that** was used to break the speed record...

# EFFICIENCY ERRORS

**10% of GMAT SC Questions**

## Conciseness

Modern business writing is clear and concise. Although some right answers could still be more concise, the right answer is always the most concise option, but not necessarily the shortest.

**Example**:
Wrong:
Lars Bergsweissen held seven titles gathered from within a single season.

Right:
Lars Bergsweissen held seven titles gathered in a single season.

## The Jumbler

Quite frequently the test-writers will present one or more options that are seemingly jumbled. These will be pretty straightforward to eliminate just by their very nature.

**Example**:
Wrong:
As having been gathered, astonishing as it may have been, to team sought to remedy the matter at hand, the evidence presented.

Right:
Once the astonishing evidence was gathered, and presented, the team sought to remedy the matter at hand.

## Passive Voice

Passive voice refers to a sentence in which the actor in the sentence appears near the end. Passive voice is incorrect on the GMAT.

**Example**:
Wrong:
Offering local tax incentives to encourage new commerce to the region did Buckham

Right:
Buckham sought to encourage new commerce to the region by offering local tax incentives.

# EFFICIENCY ERRORS

**10% of GMAT SC Questions**
**One of more common error types on the GMAT**

## Transitions

These words are commonly used to extend a sentence (but on the GMAT you can only have one transition per sentence)

**and** - Continuation
**but** - Contrast/downside
**yet** - Surprise/twist
**although** - Introduces an initial condition then an following result
**because** - Introduces an explanatory condition

You may also extend a sentence with a ", [VERB]ing"

**Example**:
Right:
The new menu was a triumph, **appealing** to the diverse array of the restaurant's patrons.

## Redundancy

Redundancy refers to two words or phrases in a sentence that express the same idea. You only need one of those words or phrases.

**Example**:
Wrong:
**In the future,** automated vehicles will be commonplace **in the years to come.**

Right:
**In the future,** automated vehicles will be commonplace.

# CR BOX MASTER PAGE

**The EMPOWERgmat system to break down all CR questions**

## The Missing Information Family

The vast majority of CR questions hinge on your ability to detect key missing information in the prompt. Here are the CR boxes for the question types that hinge on that skill:

### Assumption

| | | |
|---|---|---|
| A | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

### Strengthen

| | | |
|---|---|---|
| S | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

### Weaken

| | | |
|---|---|---|
| W | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

### Evaluate a Plan

| | | |
|---|---|---|
| EP | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

### Explain

| | | |
|---|---|---|
| E | 1 | BID (Boil It Down) - Mystery |
| | 2 | Missing Information - Theory |

## The Others

With the exception of inference questions, nearly all of the non-missing information questions are rare. Here are the CR Boxes for the rest:

### Inference

| | | |
|---|---|---|
| I | 1 | BID (Boil It Down) - Key Facts |
| | 2 | 100% |

### Flaw

| | | |
|---|---|---|
| F | 1 | BID (Boil It Down) |
| | 2 | Describe the Flaw |

### Bolded Statement

| | | |
|---|---|---|
| BS | 1 | [Role of Statements] |
| | 2 | [Relationship of Statements] |

### Method of Argument

| | | |
|---|---|---|
| M | 1 | BID (Boil It Down) |
| | 2 | Describe the Tactic |



**NOTE**: This packet is to be used in conjunction with the Modules in your EMPOWERgmat Course. This packet is NOT designed to be a complete treatment of any subject herein.

# WRONG ANSWER CATEGORIES

**Every wrong answer choice is outside of the logical focus of the argument in one or a blend of several ways. Master these, and the test-writers can't trick you.**

**Consider the following question to demonstrate the wrong answer types:**

TempleWare industries has recently developed a new weapons sensor that it believes will be a success in crowded venues, such as stadiums, theaters, and schools. Therefore, the company believes the sensor will be a commercial success.

Which of the following, if true, would best support the economist's argument above?

## Out of Focus - Irrelevant; Distortion; Wrong Term or Phrase

**This error type dominates! Approximately 80-85% of wrong CR answers.**

These wrong answers involve something outside of the logical focus of the argument. In other words, these wrong answers are irrelevant. Here are some examples:

(X) The new sensor will be able to capture a sizable **share of the market**.
(X) The new product is likely to generate a **healthy profit** for the company.

## Out of Focus - 180

**Roughly 15% of wrong CR answers. Very common in Inference Questions.**

These wrong answers are the exact opposite of what we're looking for. These answers are designed to punish those who lose track of the objective of the question. Here is an example:

(X) The new sensor will be **unlikely to gain any substantial traction** among the typical buyers of such technology.

## Out of Focus - Warp/Extreme

**Roughly 15% of wrong CR answers. Very common in Inference Questions.**

These wrong answers go way too far. These answers are particularly common in inference questions on both CR and RC questions. Its also common to see an extreme 180. Arguably the worst of the worst answers on the GMAT. Consider this extreme 180.

(X) The new technology will **never gain any considerable traction** in the market place.

# ASSUMPTION

**10% of GMAT CR Questions**
**A fairly common CR question type**

## Assumption

| | | |
|---|---|---|
| A | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

## Objective

Assumption questions ask you to find a piece of information that would also have to be true for the argument to function. Put another way, you're looking for the answer that's required to be true for the argument to work.

## The Opposite Test

The Opposite Test is a powerful tool to prove if an option is required. If we take the opposite of the correct option, the argument will fall apart.

**Example:**

ExBenton Motor Company has developed a driver monitoring system that will warn the driver by flashing lights, and warning sounds if the driver is not paying attention to the road ahead, or a dangerous situation is detected. A spokeswoman for the company claims that the new system will make its new cars safer.

The argument above rests on which of the following assumptions?

(A) The new system will be commercially successful.

(B) ExBenton Motor Company is likely to sell more cars if the new feature is available to the public.

(C) People unfamiliar with the new system could become distracted or confused by the system's flashing lights and warning sounds.

**(D) Drivers of cars equipped with the new system are likely to know how to respond to the warning lights and flashing sounds to avert danger.**

(E) Similar driver monitoring systems have been proven to improve safety in both testing and on real-life conditions.

## Common Question Forms

Here are some of the most common ways Assumption questions are asked:

1. **Which of the following is an assumption that supports drawing the conclusion above from the reason given for that conclusion?**
2. **Which of the following is an assumption on which the argument depends?**
3. **The conclusion above is properly drawn if which of the following is assumed?**

# WEAKEN

**One of the 3 most common CR question types**
**20% of GMAT CR Questions**

**Weaken**

| | | |
|---|---|---|
| W | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

## Objective

Weaken questions ask you to find the option that severely undercuts the key missing information.

**Example:**

Scholars believe that sequence dating, a process that used to measure the relative age difference between different periods, can be used to accurately date the age of an archaeological site. Using sequence dating, several notable archaeologists concluded that several pots recently found at a certain site in Egypt indicate that the site must have been pre-dynastic.

Which of the following, if true, would most seriously weaken the archaeologist's conclusion above?

(A) Some of the pots appear to have been placed at the site well after the period in which they were made.

**(B) The style of pot found was made over the course of many centuries, well into the dynastic, and post-dynastic period.**

(C) Very few other archaeologists have stated that they agree with the conclusion that these pots prove the site was pre-dynastic.

(D) The pots have a particular handle that was only on pots made over a period of 50-150 years.

(E) Pots found at a nearby site have been proven to be from a completely different period.

## Common Question Forms

Here are some of the most common ways Weaken questions are asked:

1. **Which of the following, if true, most weaken the conclusion drawn above?**
2. **Which of the following, if true, most seriously calls into question the explanation above?**
3. **Which of the following, if true, most seriously undermines the executive's argument?**



**NOTE**: This packet is to be used in conjunction with the Modules in your EMPOWERgmat Course. This packet is NOT designed to be a complete treatment of any subject herein.

# STRENGTHEN

**One of the 3 most common CR question types**
**20% of GMAT CR Questions**

| | | |
|---|---|---|
| S | 1 | BID (Boil It Down) |
| | 2 | Missing Information |

## Objective

Strengthen questions ask you to find an option that provides a boost for the key missing information.

**Example:**

Reverse innovation refers to advancements that are first made in the developing world, and then adopted by the developed world. Some economists argue that such innovation enables new technological advancements to be developed and produced at lower cost, thus delivering innovation to the developed world at more affordable prices.

Which of the following, if true, would best support the economists' argument above?

(A) Many products developed as a result of reverse innovation are affordable.

(B) Customers who purchase products derived from reverse innovation tend to be cost conscious.

**(C) Companies that market products originally developed from reverse innovation typically do not add substantial mark-ups to those products.**

(D) Reverse innovation only makes up a small portion of all innovation worldwide.

(E) The number of economists who believe products sourced from reverse innovation will grow substantially over the next decade has increased.

## Common Question Forms

Here are some of the most common ways Strengthen questions are asked:

1. **Which of the following, if true, most strongly supports the conclusion above?**
2. **Which of the following, if true, would best support for the argument above?**

# EVALUATE A PLAN

**10% of GMAT CR Questions**
**A fairly common CR question type**

| EP | 1 | BID (Boil It Down) |
|---|---|---|
| | 2 | Missing Information |

## Objective

Evaluate questions asks you to pick the option that would be most useful to determine whether the plan would work or not. In other words, which answer would help make or break the argument? The Yes/No Test is a powerful tool to evaluate whether an option is vital to investigate.

**Example:**

Sales force automation uses software to streamline the sales process. At the core of sales force automation is a contact management system to track and record every stage in the sales process for each prospective client, from initial contact to final disposition. Kravner Industries should invest in a dedicated sales force automation program to improve its sales.

Which of the following would be most useful to evaluate the likelihood that the plan outlined above would be successful?

(A) How many customers currently use sales force automation programs?

(B) What would the sales force automation program cost Kravner Industries?

**(C) What fraction of Kravner Industries potential customers are already Kravner Industries customers?**

(D) How significantly would the degree of effectiveness between initial contact and final disposition vary for the new sales force automation program?

(E) How many of Kravner Industries' competitors currently use sales force automation programs?

## Common Question Forms

Here are some of the most common ways Evaluate a Plan questions are asked:

1. **Which of the following would be most useful to evaluate the argument's conclusion?**
2. **Which of the following would it be most useful to establish in order to evaluate the argument?**

# INFERENCE

**One of the 3 most common CR question types**
**20% of GMAT CR Questions**

| | | |
|---|---|---|
| I | 1 | **BID (Boil It Down) - Key Facts** |
| | 2 | **100%** |

## Objective

Inference questions test your ability to determine what can be proven with 100% certainty. The right answer to an Inference Question is one that **must be true** with absolute certainty on the basis of the facts given.

**Example:**

The dorsal attention network is one of two sensory orienting systems in the human brain, and this complex network signals where a human's attention should be focused. The dorsal attention network shows activity increases after a presentation of cues indicating what subjects should direct their attention to.

The statements above, if true, best support which of the following assertions?

(A) The dorsal attention network is the primary sensory orienting system in the human brain.

(B) Relative to the dorsal attention network, other sensory orienting systems do not demonstrate the same degree of activity increases after exposure to a presentation of cues.

(C) Where human attention is focused is always predictable given a particular activity increase, and the degree of exposure.

**(D) Activity in a human's dorsal attention network is lower preceding a presentation of cues as to where to focus that human's attention.**

(E) The two human sensory orienting systems play equal roles in determining where human attention should be focused.

## Common Question Forms

Here are some of the most common ways Inference questions are asked:

1. **Which of the following conclusions about [XYZ] is best supported by the facts above.**
2. **The claims above, if true, best support which of the following conclusions?**
3. **Which of the following most logically completes the argument?**

# EXPLAIN

**10% of GMAT CR Questions**
**A fairly common CR question type**

| | | |
|---|---|---|
| E | 1 | BID (Boil It Down) - Mystery |
| | 2 | Missing Information - Theory |

## Objective

Explain questions will present you with a mystery. The right answer will be the best theory to explain or resolve the mystery.

**Example:**

BioHome is a small research facility that supports a single person in a fully functional habitat. However, despite the stunning degree of effort to recreate a microcosm of the real world, engineers and scientists were surprised to discover that plants and other organic matter failed to grow in the same way they do in the regular atmosphere.

Which of the following, if true, best explains the surprising result described above?

**(A) To be suitable for organic matter such as plants, fungi, and bacteria, oxygen must be within a very specific range, and BioHome's oxygen was well beyond that which can be reasonably expected to support these life forms.**

(B) Most of the plants housed in BioHome were from lower latitudes similar to the latitude of BioHome itself.

(C) Even though BioHome was engineered to sustain a single person, theoretically several people could fit within it.

(D) Nearly all materials used to construct the BioHome are cutting edge materials conducive to organic lifeforms.

(E) BioHome has subsequently become home to a number of plant species ranging from typical houseplants to more exotic tropical plants.

## Common Question Forms

Here are some of the most common ways Explain questions are asked:

1. **Which of the following, if true, best explains the apparent discrepancy outlined above?**
2. **Which of the following, if true, best accounts for the [mystery summarized]?**
3. **Which of the following does most to resolve the paradox described above?**

# FLAW

**5-10% of GMAT CR Questions**
**A fairly rare CR question type**

| | | |
|---|---|---|
| F | 1 | BID (Boil It Down) |
| | 2 | Describe the Flaw |

## Objective

Flaw questions ask you to find the answer that best describes the logical flaw of the argument.

**Example:**

The moisture content of wood is measured by the weight of water as a percentage of the oven-dry weight of the wood fiber. The key to controlling decay is to control moisture. Once decay fungi are established, the minimum moisture content for decay to occur is easily propagated. Not surprisingly, if homeowners control moisture, they will prevent wood decay.

The argument is flawed primarily because the author

(A) confuses the meaning of the key term "decay"

(B) makes a broad assertion from only a limited sample of information

**(C) treats a common cause of a problem as though it were the only cause of that problem**

(D) unfairly describes a problem to make it easier to attack

(E) confuses the cause of the problem with the effect of the problem

## Common Question Forms

Here are some of the most common ways Flaw questions are asked:

1. **Which of the following, if true, most strongly indicates that the logic of the prediction above is flawed?**
2. **Which of the following is an assumption on which the argument depends?**
3. **The legislator's argument is flawed because it fails to consider that**

# BOLDED STATEMENT

**5-10% of GMAT CR Questions**
**A fairly rare CR question type**

| | | |
|---|---|---|
| BS | 1 | [Role of Statements] |
| | 2 | [Relationship of Statements] |

## Objective

Bolded statement questions ask you to describe the role played by each bolded statement. A statement will either be a point (conclusion), or support for a point (evidence).

If there is more than one bolded statement, which is almost always the case, you will be asked to describe the relationship between the statements. Either supporting or opposing.

For example, you might see a bolded statement that provides evidence for a point, and the second bolded statement is that point.

Or perhaps the first bolded statement is a claim, and the second bolded statement is a counter-claim.

**Example:**

Sustainable packaging is becoming more common. The motivations range from government regulation, consumer pressure, retailer pressure, and cost reduction. **However, plastic packaging is usually non-biodegradable due to possible interactions with the food**. Also, biodegradable polymers often require special non-biodegradable compounds to properly degrade. **Not surprisingly, the solution for the perfect sustainable packaging remains elusive**.

In the argument given, the two boldfaced portions play which of the following roles?

**(A) The first bolded statement raises a consideration that leads to the second bolded statement, the conclusion of the argument.**

(B) The first bolded statement is the conclusion that the evidence in the second bolded statement seeks to prove.

(C) The first bolded statement is an intermediate conclusion of the argument, and the second bolded statement is primary conclusion of the argument.

(D) The first bolded statement is an intermediate conclusion, and the second bolded statement is evidence supporting that intermediate conclusion.

(E) The first bolded statement is evidence supporting a claim, and the second bolded statement is further evidence for that claim.

## Common Question Forms

Here are some of the most common ways Bolded Statement questions are asked:

1. **In the argument given, the two boldfaced portions play which of the following roles?**
2. **In the argument given, the two portions in boldface play which of the following roles?**
3. **In the engineer's argument, the portion in boldface plays which of the following roles?**

# METHOD OF ARGUMENT

**2-5% of GMAT CR Questions**
**A extremely rare CR question type**

| | | |
|---|---|---|
| M | 1 | BID (Boil It Down) |
| | 2 | Describe the Tactic |

## Objective

Method of Argument questions ask you to find the answer that best describes how the argument was constructed.

**Example:**

Melvin: Anyone who believes that autonomous, computer controlled cars, are likely to catch on with the public at large overlooks the obvious danger associated with computer error, or the absence of human instinct to evade danger in high risk situations.

Amanda: Sure there are risks associated with computer error, but can we be sure that they exceed the risk associated with human error? Until we know for sure, it just may turn out that autonomous cars could be more convenient, and significantly safer than human driven cars.

Amanda responds to Melvin by

(A) attacking Melvin personally, rather than Melvin's argument

**(B) pointing out that Melvin's argument overlooks an important issue needed to make a valid comparison**

(C) agreeing with Melvin's overall conclusion, and providing additional evidence to support her agreement

(D) refuting Melvin's argument by pointing out a consideration that runs directly counter to Melvin's claim

(E) disagreeing with Melvin's argument in part, but ultimately agreeing with his claim

## Common Question Forms

Here are some of the most common ways Method of Argument questions are asked:

1. **The reporter challenges the spokesperson's argument by doing which of the following?**

Here are some of the most common ways Bolded Statement questions are asked:

1. **In the argument given, the two boldfaced portions play which of the following roles?**
2. **In the argument given, the two portions in boldface play which of the following roles?**
3. **In the engineer's argument, the portion in boldface plays which of the following roles?**

# VERBAL TRIAGE

**A ground-breaking EMPOWER tactic that will help you to crush the quant section by quickly moving past the questions that don't matter. It's also helpful in aiding you to take an educated guess on any question that you're "stuck" on.**

## Critical Reasoning:

**Strengthen/Weaken/Assumption/Evaluate a Plan**

Focus Bombing:
Right answers for these questions must meet these two criteria
1. Who is the argument about?
2. What are they doing?

Eliminate answers that are out of the logical focus of the argument

**Inference**

Wrong answers tend to use exaggerated language (all, none, will)

## Reading Comp:

**Purpose**

Focus Bombing:
Right answers for purpose questions must meet these two criteria
1. Who is the passage or part of the passage about?
2. What is the author doing?

Eliminate answers that are out of the logical focus of the passage

**Inference**

Wrong answers tend to use exaggerated language (all, none, will)
Right answers are extremely unlikely to repeat a line of exact or nearly exact text from the passage

**Detail**

Tempting wrong answers tend to draw on correct ideas, but slightly alter an aspect of what was stated that renders the option wrong

## Sentence Correction:

**Singular vs. Plural**: The right answers are more frequently singular
**Stuck? Go shorter**: Approximately 75% of right answers are among the shortest two options (based on publicly released official GMAT questions)

# VERBAL TRIAGE

**A ground-breaking EMPOWER tactic that will help you to crush the quant section by quickly moving past the questions that don't matter. It's also helpful in aiding you to take an educated guess on any question that you're "stuck" on.**

## VERBAL QUESTIONS WORTH TRIAGE-ING

As a general rule, these Verbal question types tend to be more ripe Triage targets:

1. CR Bolded Statement Questions
2. CR & RC Tedious EXCEPT questions
3. RC Detail questions that require EXTENSIVE passage revisits
4. SC questions in which each option is unique (no commonality among the options)

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