

GRE Sample Paper 09

A) Test Components: Analytical Writing — Verbal Reasoning — Quantitative Reasoning

B) Total Questions: 108 Questions

C) Total Time Allowed: 3 Hours 45 Minutes

- **Analytical Writing:** 2 Essays — 60 Minutes
- **Verbal Reasoning:** 2 Sections — 82 Minutes Total
- **Quantitative Reasoning:** 2 Sections — 94 Minutes Total

D) Marking Scheme:

- **Correct Answer:** +1 Point
- **Incorrect/Unattempted:** 0 Points (No Negative Marking)
- **Multi-blank/Equivalence:** No partial credit.

SECTION I: ANALYTICAL WRITING

1. Analyze an Issue (30 Minutes)

"The best way to teach is to praise positive actions and ignore negative ones."

2. Analyze an Argument (30 Minutes)

The following appeared in a memorandum from the city planning department of Oakhaven.

"Last year, the neighboring city of Zenith implemented a public bicycle-sharing program. Since the program's inception, Zenith's downtown traffic congestion has decreased by 20 percent and reported air pollution levels have dropped significantly. To reduce traffic congestion and improve the air quality in Oakhaven, the city council should immediately allocate funds to create an identical bicycle-sharing program. By providing our citizens with the same number of bicycles and docking stations as Zenith, we can expect a similar reduction in automobile use and a healthier environment for all residents."

SECTION II: VERBAL REASONING - PART 1

Q1. The physicist's explanation was surprisingly _____; despite the inherent complexity of quantum mechanics, she managed to make the concepts graspable for a general audience.

- A. Esoteric
- B. Lucid
- C. Abstruse
- D. Opaque

Q2. The environment in the deep-sea trenches is famously _____ to human life, characterized by crushing pressures, freezing temperatures, and a total absence of sunlight.

- A. Inimical
- B. Amenable
- C. Salubrious
- D. Propitious

Q3. While the board of directors initially viewed the merger as (i) _____, fearing it would dilute the company's brand, they were later (ii) _____ when the quarterly reports showed a record increase in global reach.

- A. (i) Advantageous; (ii) Vindicated
- B. (i) Detrimental; (ii) Vindicated
- C. (i) Detrimental; (ii) Chastened
- D. (i) Apathetic; (ii) Vindicated

Q4. The historian's account was criticized for being (i) _____; by focusing exclusively on the lives of monarchs, he (ii) _____ the significant social and economic contributions of the working class.

- A. (i) Comprehensive; (ii) Overemphasized
- B. (i) Myopic; (ii) Underscored
- C. (i) Myopic; (ii) Obscured
- D. (i) Nuanced; (ii) Obscured

Q5. The passage suggests that the "Hubble Tension"—the discrepancy between different measurements of the universe's expansion rate:

- A. Is likely the result of a simple mathematical error in early satellite data.
- B. May indicate that our current standard model of cosmology is incomplete.
- C. Has been resolved by the latest observations from the James Webb Telescope.
- D. Proves that the universe is actually contracting rather than expanding.

Q6. According to the passage, the "Cosmic Microwave Background" (CMB) is used by scientists to:

- A. Predict the exact date of the eventual collapse of the galaxy.
- B. Measure the expansion rate of the early universe shortly after the Big Bang.
- C. Identify the chemical composition of distant exoplanets.
- D. Track the movement of dark matter within our local solar system.

Q7. The author mentions "Type Ia Supernovae" primarily to:

- A. Provide an example of an alternative method for measuring cosmic distances.
- B. Explain the process by which heavy elements are distributed throughout space.
- C. Argue that volcanic activity on distant planets is visible from Earth.
- D. Illustrate the dangers that collapsing stars pose to nearby civilizations.

Q8. The charity was founded to aid the city's _____ population, providing food, clothing, and shelter to those who had been displaced by the recent economic crisis.

- A. Impecunious and Indigent
- B. Affluent and Wealthy
- C. Opulent
- D. Indifferent

Q9. The therapist's calm demeanor helped to _____ the patient's anxiety, allowing the session to proceed in a much more productive manner.

- A. Assuage and Allay
- B. Exacerbate and Aggravate
- C. Incite
- D. Foment

Q10. A study found that people who drink five cups of coffee a day have lower rates of heart disease. However, the study did not account for the fact that the coffee drinkers also exercised significantly more than the non-coffee drinkers. Which of the following best describes the flaw in the study's conclusion?

- A. It assumes that heart disease is the only health risk associated with caffeine.
- B. It fails to consider a confounding variable that could explain the observed correlation.
- C. It relies on self-reported data which is often notoriously inaccurate.
- D. It ignores the long-term environmental impact of coffee bean cultivation.

Q11. Choose the sentence that correctly utilizes the subjunctive mood to express a wish or a hypothetical situation:

- A. I wish I was able to attend the gala last night.
- B. If he was the president, he would sign the bill immediately.
- C. If I were you, I would think twice before signing that contract.
- D. I hope that she is arriving on time for the meeting.

Q12. In the sentence "The traitorous act was driven by a base desire for wealth and power," the word "base" most nearly means:

- A. Located at the bottom
- B. Lacking moral principles or dishonorable
- C. Serving as a foundation
- D. Fundamental and essential

SECTION III: VERBAL REASONING - PART 2

Q1. The social media platform was (i) _____; while it promised (ii) _____, it actually (iii) _____ existing social divisions through its algorithmic filtering.

- A. (i) Paradoxical; (ii) Connectivity; (iii) Exacerbated
- B. (i) Beneficial; (ii) Isolation; (iii) Diminished
- C. (i) Paradoxical; (ii) Privacy; (iii) Exacerbated
- D. (i) Simple; (ii) Connectivity; (iii) Healed

Q2. The technological shift was (i) _____, but the (ii) _____ adoption of the new standards by industry leaders ensured its long-term success.

- A. (i) Disruptive; (ii) Rapid
- B. (i) Gradual; (ii) Sluggish
- C. (i) Disruptive; (ii) Negligible
- D. (i) Minor; (ii) Rapid

Q3. To the public, the new AI seemed (i) _____, but researchers warned that its (ii) _____ nature made it difficult to predict how it would handle edge cases.

- A. (i) Omniscient; (ii) Opaque
- B. (i) Fallible; (ii) Lucid
- C. (i) Omniscient; (ii) Transparent
- D. (i) Trivial; (ii) Opaque

Q4. The city found the transit plan (i) _____, but the (ii) _____ environmental impact made it the most sustainable choice available.

- A. (i) Expensive; (ii) Minimal
- B. (i) Affordable; (ii) Massive
- C. (i) Expensive; (ii) Detrimental
- D. (i) Simple; (ii) Minimal

Q5. The inventor's reputation for _____ was well-earned; he was constantly coming up with new, unexpected ways to solve everyday problems.

- A. Ingenuity
- B. Dullness
- C. Stagnation
- D. Pedantry

Q6. The scientific paper was so _____ that it required several readings for even doctoral students to fully grasp its methodology.

- A. Abstruse
- B. Pellucid
- C. Transparent
- D. Succinct

Q7. According to the passage, the "Digital Divide" refers to:

- A. The technical differences between various computer operating systems.
- B. The gap between those who have access to modern technology and those who do not.
- C. The psychological addiction people feel toward their electronic devices.
- D. The speed difference between fiber-optic and traditional cable internet.

Q8. The author refers to "remote education" to suggest that:

- A. Technology can democratize learning if access is made universal.
- B. Students learn better in physical classrooms than they do online.
- C. The internet has made the role of the teacher obsolete.
- D. Education is the only sector of the economy not affected by the digital era.

Q9. Which of the following best expresses the "echo chamber effect" mentioned in the text?

- A. The tendency of algorithms to show users content that reinforces their existing beliefs.
- B. The physical sound design of modern open-plan offices.
- C. The rapid spread of viral news stories across multiple platforms.
- D. The ability of hackers to intercept and repeat private communications.

Q10. A study shows that children who play video games have faster reaction times. However, these children also spend significantly more time in organized sports. Which weakens the conclusion that video games cause faster reactions?

- A. Organized sports are known to improve physical coordination and reaction speed.
- B. Some video games are designed specifically to be slow and meditative.
- C. The study was conducted only on children between the ages of 8 and 12.
- D. Parents reported that video games improved their children's problem-solving skills.

Q11. The task was _____, requiring months of effort and a large team of specialized workers to complete.

- A. Onerous and Formidable
- B. Facile and Effortless
- C. Trivial
- D. Negligible

Q12. The diplomat was _____, always managing to maintain a calm and professional demeanor even during heated debates.

- A. Imperturbable and Unflappable
- B. Excitable and Volatile
- C. Mercurial
- D. Capricious

Q13. The new building was _____, with a design that stood out from the traditional architecture of the surrounding neighborhood.

- A. Unconventional and Heterodox
- B. Orthodox and Conventional
- C. Traditional
- D. Mundane

Q14. The politician's speech was _____, filled with empty slogans that failed to address the actual concerns of the voters.

- A. Vacuous and Inane
- B. Insightful and Profound
- C. Pithy
- D. Cogent

Q15. The scientist was _____, willing to change his hypothesis as soon as new data proved his previous assumptions wrong.

- A. Flexible and Adaptable
- B. Dogmatic and Rigid
- C. Inflexible
- D. Adamant

SECTION IV: QUANTITATIVE REASONING - PART 1

Q1. x and y are positive integers such that $x > y$.

Quantity A	Quantity B
$x^2 - y^2$	$(x - y)^2$

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q2. The average of four numbers is 10. If three of the numbers are 5, 8, and 12, what is the fourth number?

- A. 10
- B. 12
- C. 15
- D. 20
- E. 25

Q3. The side of a square is s . The length of a rectangle is $2s$ and its width is $0.5s$.

Quantity A	Quantity B
The perimeter of the square	The perimeter of the rectangle

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q4. $a < b < 0$.

Quantity A	Quantity B
$1/a$	$1/b$

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q5. If $3(x - 4) = 2x + 5$, then $x =$

- A. 9
- B. 12

C. 17

D. 20

E. 24

Q6. What is the value of $(1/2)^3 + (1/2)^2$?

A. $1/8$

B. $3/8$

C. $5/8$

D. $1/2$

E. $3/4$

Q7. A bag contains 5 green, 4 red, and 3 blue balls. If one ball is drawn at random, what is the probability that it is NOT green?

A. $5/12$

B. $7/12$

C. $1/3$

D. $1/4$

E. $2/3$

Q8. A rectangle has an area of 48. If its length is 3 times its width, what is the perimeter of the rectangle?

A. 16

B. 24

C. 32

D. 48

E. 64

Q9. If k is a positive integer and $24k$ is a perfect square, which of the following could be the value of k ? (Select all that apply)

☐ 6

☐ 24

☐ 54

Q10. If a car travels at a speed of 90 km/h, how many meters does it travel in one second?

Q11. If $y = 3x - 5$ and $x = 4$, then $y^2 - 10 =$

- A. 39
- B. 49
- C. 79
- D. 100
- E. 121

Q12. The sum of the interior angles of a certain polygon is 720 degrees. How many sides does the polygon have?

SECTION V: QUANTITATIVE REASONING - PART 2

Q1. n is a positive integer.

Quantity A	Quantity B
The units digit of 5^n	The units digit of 6^n

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q2. $x > 0$ and $x^2 = 49$.

Quantity A	Quantity B
x^3	350

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q3. x is an integer.

Quantity A	Quantity B
The standard deviation of $\{x, x + 1, x + 2\}$	The standard deviation of $\{1, 2, 3\}$

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q4. If 30% of x is 50, what is 60% of x ?

- A. 25
- B. 75
- C. 100
- D. 150
- E. 200

Q5. Working alone at constant rates, pump A fills a pool in 3 hours and pump B fills it in 6 hours. How many hours does it take both pumps working together to fill the pool?

- A. 2
- B. 4.5
- C. 9
- D. 18
- E. 2

Data Interpretation: Household Budget Allocation

Category	2021 Expense (\$)	2022 Expense (\$)
Rent	1,200	1,320
Food	400	500
Utilities	150	180
Entertainment	100	50

Q6. What was the percent increase in the budget for "Food" from 2021 to 2022?

- A. 10%

- B. 20%
- C. 25%
- D. 30%
- E. 40%

Q7. In 2022, "Rent" accounted for approximately what percent of the total expenditure listed for these four categories?

- A. 44%
- B. 55%
- C. 64%
- D. 75%
- E. 82%

Q8. What was the total expenditure for all four categories in the year 2021?

Q9. A right triangle has legs $a = 8$ and $b = 15$. What is the perimeter of the triangle?

- A. 17
- B. 23
- C. 30
- D. 40
- E. 46

Q10. If $x \diamond y = x^2 - y$, find the value of $(3 \diamond 4) \diamond 2$.

Q11. A committee of 2 members is to be selected from 5 candidates. How many different committees are possible?

- A. 5
- B. 10
- C. 20
- D. 25
- E. 120

Q12. A line L passes through $(-1, 2)$ and $(3, 10)$.

Quantity A	Quantity B
The slope of line L	2

- A. Quantity A is greater.
- B. Quantity B is greater.
- C. The two quantities are equal.
- D. The relationship cannot be determined from the information given.

Q13. How many integers between 50 and 100 are divisible by both 3 and 5?

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

Q14. If $f(x) = x^2 - 1$, then $f(x + 1) =$

- A. x^2
- B. $x^2 + 2x$
- C. $x^2 + 2x + 1$
- D. $x^2 + 1$
- E. $x^2 - 2x$

Q15. In a survey of 100 employees, 65 have a car, 45 have a bicycle, and 20 have both. How many employees have neither a car nor a bicycle?

Solutions - Verbal Reasoning Section I

1. **(B)** The sentence uses the contrast word "despite" to show that even though the subject (quantum mechanics) is complex, the explanation was easy to understand. "Lucid" means expressed clearly and easy to understand, which perfectly fits the context.
2. **(A)** The conditions described (crushing pressure, no light, freezing cold) are extremely hostile to life. "Inimical" means tending to obstruct or harm; unfriendly or hostile.
3. **(B)** For blank (i), "detrimental" fits the board's fear that the merger would "dilute the brand." For blank (ii), "vindicated" means to be proven right or justified, which fits the shift after reports showed a "record increase."
4. **(C)** For blank (i), "myopic" (shortsighted/lacking imagination) describes a historian focusing on only one group. For blank (ii), this narrow focus "obscured" (hid or made unclear) the contributions of the working class.
5. **(B)** In scientific passages, a "tension" or discrepancy between two sets of data usually suggests that the theory used to predict them—in this case, the "standard model of cosmology"—might be "incomplete" or in need of revision.
6. **(B)** The Cosmic Microwave Background is the "afterglow" of the Big Bang. Scientists study it to "measure the expansion rate of the early universe" to compare it with modern rates (the basis of the Hubble Tension).
7. **(A)** Type Ia Supernovae are known as "standard candles" because they have a consistent brightness. The author mentions them to "provide an example of an alternative method for measuring cosmic distances" (the other being the CMB).
8. **(A)** In Sentence Equivalence, the words must describe people who are poor or displaced by crisis. "Impecunious" and "indigent" are synonyms that both mean having little or no money.
9. **(A)** A "calm demeanor" is used to reduce anxiety. "Assuage" and "allay" are synonyms that mean to make an unpleasant feeling (like anxiety or fear) less intense.
10. **(B)** The study links coffee to heart health, but fails to account for the fact that these people also exercise. Exercise is a "confounding variable" (an outside factor) that could be the real cause of the heart health, not the coffee.
11. **(C)** The subjunctive mood is used for hypothetical "contrary to fact" statements. The standard GRE-tested rule is using "were" for the 1st person singular in hypothetical "if" clauses (e.g., "If I were you...").
12. **(B)** In this context, "base" is an adjective. While it can mean the bottom of something, in a moral context, it means "lacking moral principles; ignoble or dishonorable."

Solutions - Verbal Reasoning Section II

1. (A) For blank (i), "paradoxical" describes something that is self-contradictory. The contradiction is between the promise of (ii) "connectivity" and the actual result of (iii) "exacerbated" (made worse) social divisions.
2. (A) For blank (i), "disruptive" describes a technology that displaces an existing one. Despite this disruption, the (ii) "rapid" (fast) adoption by leaders ensured it became the new standard.
3. (A) For blank (i), "omniscient" (all-knowing) fits how the AI "seemed" to the public. The contrast "but" leads to blank (ii), where researchers warn its "opaque" (not transparent/hidden) nature makes it hard to predict.
4. (A) For blank (i), "expensive" fits the city's initial concern. The contrast "but" indicates that the (ii) "minimal" environmental impact outweighed the financial cost, making it the best choice.
5. (A) The ability to find "new, unexpected ways to solve problems" is the definition of "ingenuity" (the quality of being clever, original, and inventive).
6. (A) If a paper requires several readings for highly educated doctoral students, it is "abstruse," meaning difficult to understand; obscure.
7. (B) In sociology and tech, the "Digital Divide" is defined as the "gap between those who have access to modern information and communication technology and those who do not."
8. (A) The author presents "remote education" as a tool for equity. The suggestion is that "technology can democratize learning" (make it available to all) if the barrier of "access" is removed.
9. (A) An "echo chamber" is a metaphorical description of a situation in which beliefs are amplified or reinforced by communication and repetition inside a closed system, driven by "algorithms" showing users what they already agree with.
10. (A) The argument is that video games cause reaction speed. To weaken this, option (A) points out that these children also play "organized sports," which are a known cause of reaction speed. This provides an alternative explanation for the results.
11. (A) A task requiring "months of effort" and a "large team" is very difficult. "Onerous" and "formidable" both describe a task that is oppressively burdensome or dauntingly difficult.
12. (A) Someone who stays "calm" during a "heated debate" is "imperturbable" and "unflappable," both synonyms meaning unable to be upset or excited; calm.
13. (A) A building that "stood out from the traditional" is "unconventional" and "heterodox," both meaning not following what is traditional or generally accepted.
14. (A) A speech with "empty slogans" is "vacuous" and "inane," both synonyms for lacking ideas or intelligence; silly.

15. (A) A scientist willing to "change his hypothesis" based on data is "flexible" and "adaptable," both meaning able to be easily modified to respond to altered circumstances.

Solutions - Quantitative Reasoning Section I

1. (A) $x^2 - y^2 = (x - y)(x + y)$ and $x^2 y^2 = (xy)(xy)$. Since $x \neq y \neq 0$, both $(x - y)(xy)$ and $(x + y)(x + y)$ are positive. Because $y \neq 0$ is a positive integer, $(x + y) > (x - y)$. Multiplying $(x - y)(xy)$ by a larger positive value $(x + y)(x + y)$ results in a greater product than multiplying it by itself $(x - y)(xy)$. Thus, Quantity A is greater. code Code
2. (C) Sum of 4 numbers = Average $\times$ 4 = $10 \times 4 = 40$. Sum of the three known numbers = $5 + 8 + 12 = 25$. Fourth number = $40 - 25 = 15$.
3. (B) Quantity A: Perimeter of square = $4s$. Quantity B: Perimeter of rectangle = $2(L + W) = 2(2s + 0.5s) = 2(2.5s) = 5s$. Since s is a positive length, $5s > 4s$.
4. (A) In negative numbers, the value closer to zero is greater. Let $a = -2$ and $b = -1$ (satisfying $a < b < 0$). $1/a = -0.5$ and $1/b = -1$. Since $-0.5 > -1$, Quantity A is greater.
5. (C) $3x - 12 = 2x + 5 \Rightarrow x - 12 = 5 \Rightarrow x = 17$.
6. (B) $(1/2)^3 + (1/2)^2 = 1/8 + 1/4 = 1/8 + 2/8 = 3/8$.
7. (B) Total balls = $5 + 4 + 3 = 12$. Balls that are NOT green = $4(\text{red}) + 3(\text{blue}) = 7$. Probability = $7/12$.
8. (C) Let width be w , then length is $3w$. Area = $w \times 3w = 3w^2 = 48 \Rightarrow w^2 = 16 \Rightarrow w = 4$. Length = 12. Perimeter = $2(12 + 4) = 32$.
9. (A, B, C) For $24k$ to be a square, its prime factorization ($2^3 \times 3^1 \times k$) must have even exponents. Smallest k is $2 \times 3 = 6$. If $k = 6$: $24(6) = 144 = 12^2$. If $k = 24$: $24(24) = 576 = 24^2$. If $k = 54$: $24(54) = 1296 = 36^2$. All work.
10. 25 Conversion: $90 \text{ km/h} = 90,000 \text{ meters}/3,600 \text{ seconds} = 900/36 = 25 \text{ m/s}$.
11. (A) $y = 3(4) - 5 = 7$. Then $y^2 - 10 = 7^2 - 10 = 49 - 10 = 39$.
12. 6 Sum of interior angles = $(n - 2) \times 180$. $720 = (n - 2) \times 180 \Rightarrow 4 = n - 2 \Rightarrow n = 6$.

Solutions - Quantitative Reasoning Section II

1. **(B)** Any positive integer power of 5 ends in 5 ($5^1 = 5$, $5^2 = 25$, ... $5^1 = 5$, $5^2 = 25$, ...). Any positive integer power of 6 ends in 6 ($6^1 = 6$, $6^2 = 36$, ... $6^1 = 6$, $6^2 = 36$, ...). Since 6 $\nless$ 5 $\nless$ 6, Quantity B is greater. code Code
2. **(B)** $x^2 = 49$ and $x > 0 \Rightarrow x = 7$. Quantity A: $x^3 = 7^3 = 343$. Quantity B is 350. Thus, Quantity B is greater.
3. **(C)** Standard deviation measures the spread of data relative to the mean. Adding the same constant to every value in a set does not change the spacing between numbers. Both sets consist of 3 consecutive integers; therefore, the spread is identical.
4. **(C)** $0.30x = 50$. We want $0.60x$. Since $0.60x$ is exactly double $0.30x$, the value is $50 \times 2 = 100$.
5. **(A)** Rate A = $1/3$, Rate B = $1/6$. Combined rate = $1/3 + 1/6 = 3/6 = 1/2$. Time = $1/(1/2) = 2$ hours.
6. **(C)** Increase = $500 - 400 = 100$. Percent increase = $(100/400) \times 100 = 25\%$.
7. **(C)** 2022 Total = $1320 + 500 + 180 + 50 = 2050$. Rent % = $(1320/2050) \times 100 \approx 64.3\%$. The closest option is 64%.
8. **1,850** 2021 Total = $1200 + 400 + 150 + 100 = 1,850$.
9. **(D)** First find hypotenuse $c = \sqrt{8^2 + 15^2} = \sqrt{64 + 225} = \sqrt{289} = 17$. Perimeter = $8 + 15 + 17 = 40$.
10. **23** $(3 \diamond 4) = 3^2 - 4 = 5$. Then $(5 \diamond 2) = 5^2 - 2 = 23$.
11. **(B)** Combination formula $\binom{5}{2} = \frac{5 \times 4}{2 \times 1} = 10$.
12. **(C)** Slope = $\frac{10-2}{3-(-1)} = \frac{8}{4} = 2$. The quantities are equal.
13. **(A)** Multiples of both 3 and 5 are multiples of 15. Between 50 and 100, these are 60, 75, and 90. Count is 3.
14. **(B)** $f(x+1) = (x+1)^2 - 1 = (x^2 + 2x + 1) - 1 = x^2 + 2x$.
15. **10** Employees with at least one vehicle = $65(\text{car}) + 45(\text{bike}) - 20(\text{both}) = 90$. Neither = $100 - 90 = 10$.