

Tips for the Quantitative Section of the GRE

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The quantitative section of the GRE contains 28 multiple choice-questions in a 45-minute period. The questions include two formats:

- a) standard multiple choice
- b) quantitative comparison

The math topics include arithmetic, basic algebra and geometry (no proofs). Trigonometry and calculus are NOT included. The test writers carefully choose questions to eliminate biases toward candidates with specific majors: all test takers will be on a level playing field. The section is designed to test your ability to solve problems, rather than your mathematical knowledge. Questions lean heavily toward word problems and applying mathematical formulas in typical real-world applications, such as:

- * calculating interest on a loan
- * calculating the percentage drop of a stock price
- * determining a salary increase
- * determining travel times and speeds
- * determining work schedules

While test writers vary their question types from year to year, topics tend to appear with similar frequency. Recent exam questions fell into the following categories:

Ratios, Rates, Percentages	25%
Word Problems	25%
Number Properties	25%
Geometry	20%
Other	5%

Nearly every test question has a simple solution and can be solved with a minimum of calculations. In fact, quantitative comparison questions often require NO calculating, asking you to simply determine whether the quantity in Column A or Column B is greater. The trick is to correctly assess each question and apply the correct formulas to get the right answer. For standard multiple choice questions, you have the advantage of the correct answer being right in front of you. You KNOW it is one of the five listed choices.

Tips & Strategies for Success

1) Read and thoroughly review the math topics that are tested. Work on areas where you need improvement. Practice each question type until you are confident you can succeed.

2) Know the directions for each section cold. We list them below for both the standard multiple-choice section and for the quantitative comparison questions. The quantitative comparison options are particularly confusing and bear close scrutiny. Don't waste a moment of valuable time on your test day reading the directions.

Directions for problem-solving questions: For each of the following questions, select the best of the answer choices.

Numbers: All numbers used are real numbers.

Figures: The diagrams and figures that accompany these questions are for the purpose of providing information useful in answering the questions. Unless it is stated that a specific figure is not drawn to scale, the diagrams and figures are drawn as accurately as possible. All figures are in a plane unless otherwise indicated.

Instructions for Quantitative Comparison Questions:

Directions: Each of the following questions consists of two quantities, one in column A and another in Column B. You are to compare the two quantities and answer

- (A) if the quantity in Column A is greater
- (B) if the quantity in Column B is greater
- (C) if the two quantities are equal
- (D) if the relationship cannot be determined from the information given

Common information: In a question, information concerning one or both of the quantities to be compared is centered above the two columns. A symbol that appears in both columns represents the same thing in Column A as it does in Column B.

3) Read each question carefully to understand what you are being asked. The alternate answer choices are usually chosen to reflect typical mistakes test takers make when they misread the question. (If the question asks for the x-intercept, you can be fairly certain the y-intercept will be one of the wrong answer choices!)

4) Determine immediately whether the problem is simple or complex. The test questions vary from easy to very difficult but are not presented in any particular order. You should determine quickly whether the question is an "easy point" that you can answer immediately, or whether it requires multiple calculations.

5) Do all easy questions first, leaving the more time-consuming and difficult ones for later. Many test takers cannot finish the quantitative section in the time given. Make sure that you quickly earn as many easy points as possible. The time to struggle with that monster calculation is AFTER you've answered every other question on the test.

6) Before solving a problem, read all the answer choices. They will all be in the format that your own solution should take. Are the answers in miles per hour, centimeters, fractions?

7) Eliminate choices that are completely off-track. Many are chosen to correspond to typical mistakes you may make if you misread the question or miscalculate. Eliminate those that simply don't make sense as well, such as distances that are negative or % that are obviously too high or low.

8) Look for shortcuts. The test is measuring your ability to reason, not to make endless calculations. If you find yourself spending too much time doing complex calculations, stop and re-think the question. You probably missed a crucial shortcut or simple equation that can be used to solve the problem quickly.

9) Don't obsess on any one problem. If you get stuck, skip the question and go on to the next one. Skip the spot on your answer sheet and *circle the whole question that you are skipping* on the test sheet. This way, if you have a moment or two at the end to come back to it, you can find it quickly.

10) Use the substitution (or backsolving) method whenever possible. Some problems are solved fastest by simply plugging in the five answer choices and finding the one that works.

11) If you are testing answer choices randomly, start with Choice C. The five choices are always listed in order, either ascending or descending. By testing C first, you are trying the "middle" answer. If it's too large, you only need to check the two smaller answers. This quickly eliminates working with the other two incorrect answer choices.

12) If a problem lists only unknowns, try substituting real numbers. for example, consider the following:

If n is an odd integer, which of the following must be an EVEN integer?

Substitute an odd integer (such as 3) for n into all of the answer choices until you have eliminated all but the correct answer. Such calculations usually just take a few seconds and quickly solve a potentially cumbersome problem.

13) Circle all words in the question that may confuse you. Typical words include not, except and but. Consider the following question:

A survey of 50 people revealed that 42 of them had eaten at restaurant B and that 37 of them had eaten at restaurant G. Which of the following could not be the number of people in the surveyed group who ate at both B and G.

The word "not" in the question means you are looking for the one answer that doesn't work, rather than the four that could. Overlooking just this one word changes everything.

14) Most figures are drawn to scale. If they are not, the test writers will tell you otherwise. do NOT, however, assume that an angle is a right angle unless it is specifically stated in the question.

15) Be prepared to break complex figures into smaller, simpler ones. Many times a diagram will show an odd-shaped polygon and ask you to determine an area, side length or perimeter. Upon closer inspection, this polygon is actually two triangles that share a common side. The problem is usually easily solved using the Pythagorean theorem or another basic formula. This "trick" is the key to correctly solving a number of geometry questions on the exam.

16) Be ready to draw a diagram to solve word problems. Older versions of the test offered sketches for most geometry problems.

Increasingly, test writers present the problem verbally, requiring the student to draw his/her own picture of the scenario. In many cases, a diagram is the fastest way to assess a problem, organize information and find the solution.

17) Be prepared to read data from graphs and charts. Increasingly, test writers present data in a tabulated form and ask general questions about percent increases and decreases. Handle the questions the same way as you would any similar problem.

18) If you've tried everything else (substitution, backsolving, etc.) and STILL can't solve a problem, don't sweat it. Just guess. Your chances for success are 20% for multiple choices questions, 25% for quantitative comparisons and up to 50 % if you can eliminate a few incorrect answer choices.

Tips for Quantitative Comparison Questions

Quantitative comparison questions offer unique opportunities and challenges. Your job isn't to solve a problem, just to determine whether one quantity is greater than another. In addition to all of the general tips and strategies listed above, keep the following in mind when answering quantitative comparison questions:

- 1) If the quantities are expressed in different forms, make them look alike. Eliminate parentheses and factor out expressions. In geometry formulas, convert a given measurement (such as an area, perimeter or volume) to the formula that it represents.
- 2) Consider the two columns to be sides of an equality. Whatever you do to one side, do to the other. (The only operations that you *cannot* do without potentially changing the relationship between the two sides are multiplying and dividing by a negative number.)
- 3) If the problem includes variables, try substituting numbers to make the relationship clearer. Choose numbers that are easy to work with.

Try to find a second set of numbers that will alter the relationships. Make sure the relationship holds for positive numbers, negative numbers and fractions.

4) Choice D is correct in cases when you can demonstrate two different relationships between the columns. If the quantities both contain only numbers, Choice D is never correct.

5) Beware of common traps. One trap is the use of squares: the square root of 25 can be either +5 or -5.

6) Remember your goal: to determine whether one side is larger than another. Stop working on the question the second you have enough information. Do NOT bother doing any additional calculations.

Examples of Quantitative Comparison Questions:

Column A

Column B

When 1 is added to the square of B, the result is 65.

1) B

8

$k/h = e/4$
k, h, and e are positive

2) 6k

2he

j is greater than 1

3) The number of minutes in j hours

60 / j

Answers to Quantitative Comparison Questions:

1. Choice D is correct. While $65 = (8)(8) + 1$, we cannot assume that $B = 8$. B could also be -8 . Since B could be either $+8$ or -8 , we must select D.

2) Choice B is correct. We convert both sides of the "equation" to make them look alike. Divide both columns by $6h$. We discover that $e/3 > h/k$.

3) Choice A is correct. The number of minutes in j hours is $60j$. Since $j > 1$, Column A is the greater quantity.